

THE DEFINITIVE GUIDE TO THE MAKING OF DOCTOR WHO

BBC

DOCTOR WHO



THE **TWELFTH**
DOCTOR

THE COMPLETE HISTORY



STORIES 269-271

OXYGEN,
EXTREMIS
AND THE PYRAMID AT THE END OF THE WORLD





BBC

DOCTOR WHO

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OXYGEN

EXTREMIS

THE PYRAMID AT
THE END OF THE WORLD

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Welcome

Although *Doctor Who* is commonly referred to as science-fiction, it does have a tendency to lean more towards the fantastical. It will frequently ignore the real-world laws of physics, for example, rather than allow them to be a barrier to telling a good story.

Occasionally though, *Doctor Who* does dabble in what is known as 'hard science-fiction' – a sub-genre in which the story being told, for the most part, adheres to real science as we know it. The works of well-known science-fiction author Arthur C Clarke were predominantly of the 'hard' variety and his *2001: A Space Odyssey* is a good example. Although both the novel and the film of that story do involve alien intelligence, the implication is that the aliens have highly advanced technology

Below:
Technology gone wrong in *The Robots of Death*.



that still operates within the laws of the universe. Mankind, however, is shown to have ventured into space, but travel at sub-light speeds, and still have to contend with irksome things such as weightlessness and bringing their own oxygen with them.


Oxygen [2017 – see page 6], featured in this volume of *Doctor Who – The Complete History*, is a rare example of the series telling a hard science-fiction story. Aside from the presence of the TARDIS and the sonic screwdriver, it's conceivable that the events of the story could actually happen in a perhaps not-so-distant future.

It's in stories involving space travel set in the near future where *Doctor Who* at least plays lip-service to real science. Adventures such as *The Wheel in Space* [1968 – see Volume 12], *The Ambassadors of Death* [1970 – see Volume 15] and *Frontier in Space* [1973 – see Volume 19] all feature elements of space travel and exploration that would be familiar to anyone who had seen coverage of the Moon landings.

The Robots of Death [1977 – see Volume 26] doesn't feature space travel, but could still be considered hard science-fiction, presenting a credible civilisation dependant on robots with artificial intelligence. The story is clearly influenced by the works of Isaac Asimov, a contemporary of Arthur C Clarke's, and another proponent of hard science-fiction.

The other two stories in this volume are perhaps a little more fantastical than *Oxygen*, but such is the breadth of *Doctor Who*'s scope that it can comfortably embrace all styles of storytelling.

John Ainsworth – Editor



'OCCASIONALLY, DOCTOR WHO
DABBLES IN WHAT IS KNOWN
AS "HARD SCIENCE-FICTION".'



OXYGEN

► STORY 269

Investigating a distress signal, the Doctor pilots the TARDIS to the Chasm Forge space station in the far future. There, he, Bill and Nardole encounter the walking dead. Time and air are running out, and every breath comes at a price.

OXYGEN CREDITS

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REVISITING SCIENCE



'GIVEN HOW VALUABLE A COMMODITY
OXYGEN WOULD BE IN DEEP SPACE,
IT COULD BE EXPLOITED FOR
COMMERCIAL GAIN.'

Introduction

O*xygen* has a very strong premise: that given how valuable a commodity oxygen would be in deep space, it could be exploited for commercial gain.

Obviously, in the 1960s when manned space flight was becoming a reality, there had been a number of stories that played with the idea of this vital lifeline being cut. The Cybermen, in particular, took advantage of humanity's reliance on oxygen. They punctured the dome in *The Moonbase* [1967 – see Volume 9] and they tried to turn the space-station's air supply into ozone in *The Wheel in Space* [1968 – see Volume 12]. *The Space Pirates* [1969 – see Volume 14] featured a number of scenes where space travellers were in mortal peril owing to their oxygen supply being restricted. But what if this happenstance wasn't the action of a malignant foe trying to eliminate their

opposition, but simply the bottom line of a bit of cold-hearted book-keeping?

In *The Caves of Androzani* [1984 – see Volume 39] it was revealed that spectrox was the most valuable substance in the universe, by virtue of it prolonging life. In circumstances where you can control its distribution, how much more valuable would a substance be if it was one which you couldn't live without?

In *Oxygen*, the breaths of the crew on Chasm Forge were monitored by suits that could operate autonomously. The suits then started killing the people wearing them, resulting in walking corpses. This is somewhat reminiscent of the suits in *Silence in the Library/Forest of the Dead* [2008 – see Volume 59], although in that instance the suit was being animated by another life form that had consumed the original user. The idea of a suit that is an extension of the person using it dates as far back as the Total Survival Suit seen in *Kinda* [1982 – see Volume 34], combat armour that was directly linked to the operator's brain.

In addition to the characters being short of breath and pursued by creepy zombies, *Oxygen* also took the bold step of making the Doctor blind. The closest the series had come before was temporarily blinding his companion Sarah in *The Brain of Morbius* [1976 – see Volume 24]. On this occasion, beyond the dramatic reveal and a sense of heightened tension, the Doctor's loss of sight didn't particularly affect the plot. This time, however, there wasn't an easy fix – the Doctor stayed blind – and it would become an important plot device two episodes later in *The Pyramid at the End of the World* [see page 102]. ■

Left:

The Doctor is attacked by Vashta Nerada-infested spacesuits in 2008's *Silence in the Library/Forest of the Dead*.



STORY

Two workers are making their way around the outside of a mining space station, Chasm Forge. Ellie is running out of oxygen and her radio is broken, so she is unable to tell Ivan she wants to have a baby with him. But then she is attacked by two helmetless, dead crewmembers, who remove her helmet. Then the three of them advance towards Ivan... [1]

Nardole watches the Doctor giving a lecture on the ways space can kill you. He invites Bill to come with him and Nardole in the TARDIS. Picking up a distress call, they land in an airlock, then head into the station, where they find a corpse standing upright in a spacesuit. [2] They proceed into another corridor where they see an empty spacesuit robotically stacking boxes. The suit can talk, and it states that oxygen is available for personal use only. Any

unlicensed oxygen is automatically expelled – including the oxygen shell around the TARDIS. The airlock evacuates [3] and the Doctor is forced to seal it shut.

The Doctor and his friends are contacted by a crewmember, Drill Chief Tasker. He warns them to stay away from the spacesuits. Nardole discovers that all the spacesuits have received an instruction to “deactivate your organic component” – ie the wearer. [4]

The station starts filtering out the oxygen, forcing the Doctor, Nardole and Bill to put on spacesuits. Nardole spots something outside – suits containing corpses are lurching towards them! [5]

Tasker guides them towards a sealed door at the end of corridor 12, and opens it just before the suits reach them. Inside is the processing area, where they meet the surviving miners: Tasker, Ivan, Dahh-Ren and Abby. [6] Tasker thinks someone must





have hacked the suits' network to give them new orders.

The animated suits burst in, killing Tasker. The others are forced to head outside, but as the airlock is about to open, Bill's suit removes her helmet! The Doctor tells her to not to hold her breath as she is exposed to the vacuum of space. [7] She loses consciousness...

She wakes up in Section 12, an area not in the suits' mapping system.

Nardole explains that the Doctor gave her his helmet to keep her alive but paid a price. Bill goes to see him, and discovers that the Doctor is blind. [8]

Dahh-Ren and Abby pick up a transponder from an approaching ship, then the suits enter the section and kill Dahh-Ren. The others head to the reactor core, but Bill's suit jams en route. The Doctor tells her they will have to leave her behind and assures her that she is not going to die. [9] Once she is alone, her suit 'disables' her central nervous system.

The Doctor rejigs the nuclear core's cooling system and links it to the survivors' life signs, so that if the suits kill any of them, the station will be destroyed. He explains that the ship they detected is not a rescue ship – it's bringing a replacement crew, because the company has decided the existing crew is inefficient! "Like every worker, everywhere, we're fighting the suits!" [10]

The spacesuits, including the one containing Bill, walk in. The suits realise that it will be more expensive to kill the Doctor and the others than to let them die, so they give them their oxygen. [11] The Doctor then restores Bill to life; her suit's battery was too weak to kill her.

The Doctor, Nardole and Bill return to the TARDIS and drop Ivan and Abby off at 'head office' before returning to Earth. After Bill has gone, the Doctor confesses to Nardole that he is still blind! [12]

Pre-production

"A horror-driven action-adventure in outer space" was how lead writer and executive producer Steven Moffat described *Oxygen* by Jamie Mathieson on the BBC *Doctor Who* website in the week leading up to its broadcast. The story was the result of the showrunner's desire to use outer space as a setting for one of Bill's early adventures; this would be the fourth script from Mathieson who had written *Mummy on the Orient Express* [2014 - see Volume 78], *Flatline* [2014 - see Volume 79] and *The Girl Who Died* [2015 - see Volume 81] for the series since 2013.

"Steven emailed me and said he needed a space idea," recalled Jamie Mathieson to *Doctor Who Magazine*. Mathieson had embarked on a new story with an outline which he and Steven Moffat had been discussing for some time. Although Mathieson had not been briefed to write a first draft, he had commenced anyway... and was halfway through when he received the email from Moffat rejecting the other idea as "too dark".

Steven Moffat wanted to re-emphasise space as a dangerous, hostile environment; he cited River Song floating through the air corridor in *The Time of Angels/Flesh and Stone* [2010 - see Volume 64] as an



'STEVEN MOFFAT WANTED TO
RE-EMPHASISE SPACE AS A DANGEROUS,
HOSTILE ENVIRONMENT.'

example of the type of sequence he had in mind. Cinematic influences on the setting came from the 2013 science-fiction thriller *Gravity* which featured two astronauts stranded in space after the destruction of their shuttle, and also the 1995 film *Apollo 13* about the near-disaster of the manned NASA mission to the Moon which had to be aborted in 1970. The production team wanted a tale about the basics of survival while in space.

Jamie Mathieson sent Steven Moffat a short outline entitled *Oxygen* in which the TARDIS materialised in an 'elephant's graveyard for spaceships', lured into a remote area of space by a distress call, drained of energy, and the crew then picked off by creatures leaping through the vacuum from wreck to wreck. The survivors – including races usually at war with each other – tried to keep ahead of the aliens, moving from vessel to vessel in search of vital oxygen bottles to stay alive, and deciding who would endure to share in the limited supply. At this juncture, Mathieson pictured the creatures as 'large crystalline space parasites, a cross between [HR Giger's] *Alien* [from the 1979 movie] and tardigrades [eight-legged, segmented micro-animals]' which would act on instinct and possibly have a siren-like

Right:

The Doctor is blind.

Below:

The Doctor examines a spacesuit zombie.



mind-control variant which could use their gaze to make their victims open the airlock for them; consequently, the survivors' distrust of each other was fuelled by the paranoia that one of them could be possessed, creating an atmosphere similar to the 1982 science-fiction horror film *The Thing*, in which a shape-changing alien infiltrated an isolated Antarctic research station. The silicon-based, glass-like creatures were to be controlled by a queen creature nested on a nearby asteroid which acted like a huge radio antenna with a mynah-bird-like ability to simulate a distress call as her means of attracting food. The story could climax in a debate about whether to kill the queen or not.

By late November, Jamie Mathieson had pitched his new idea and monster to the BBC team who were most impressed. "I just read his first pass at a storyline for that and I've no idea where we'll end up going with that story," Steven Moffat told *Radio Times*' Patrick Mulkern, "But that's him. Being Jamie, he came in with 20 ideas and this one is just a belter." Moffat agreed to Mathieson's proposal within an hour of the email.

As 2016 arrived, the story was refined and Mathieson was briefed on Bill, the Doctor's new companion. The writer introduced a new uncanny story element in the form of animated human remains, the victims of those subjected to the low pressure of space which caused

blood to boil at a low temperature; this positioned space itself as the threat to the human survivors.

Bill was named as the Doctor's companion in the revised storyline for *Oxygen*. The pair arrived in the airlock of a lifeless ship and soon met armed, desperate survivalists led by 'the dead-eyed Kline' who were searching for food and oxygen across the vessels. To get a share of the oxygen, the Doctor and Bill needed to offer skills to Kline's group. When the threat entered the airlock where the TARDIS was, Kline had it blown, sending the box into space. The group made its way through a series of different ships, some without gravity with furniture bolted to the ceiling, some without power and light, some riddled by meteors. Different methods such as short-range teleporter, concertinaed bridge, or girder would be used to traverse space. Instead of the crystalline creatures, Mathieson considered how the vacuum of space caused blue frost to form on the skin and the blood vessels of the eyes to burst and proposed that the threat was now ice zombies, dead crew members which were intelligent and reasoning, taunting the survivors with radio messages. Considering the more densely over-run ships, the Doctor isolated where the nightmare

began, realigning the vessels to reach the start point, using valuable oxygen blown from airlocks to manoeuvre them. The oldest ship was a mining vessel attached to a nearby asteroid inhabited by a crystalline creature, its defensive resonance crippling the ships and creating the ice zombies to act as guards. The Doctor attempted to reason with the creature via a psychic link, persuading the being to stop the zombies and release the ships.

The dangers of space

In March 2016, Mathieson set about writing *Oxygen* Draft One, which was completed during April. The ice zombies became carriers, creating other carriers via infectious skin contact. To emphasise the dangers of space, the writer decided to open with a lecture from the Doctor about the hostile environment. Two of the characters in the episode were named after family friends, Darren and his 12-year-old son Ivan; Ivan had telephoned Mathieson at the start of the year to ask questions about the series.

This draft opened with the Doctor's lecture over the spinning corpses in space: 'One male, one female. Eyes closed, skin blue, spacesuits ripped and broken. One has lost their trouser leg and boot, bare foot incongruous. Both suits are of a different design.' The corpses drifted towards a huge, apparently dead spaceship where on the hull were Ellie ('twenty something') and Ivan ('a weary blond twenty something'). Ellie was confronted by the corpses whose 'eyes are unnaturally bright blue, the whites of the eyes deep red. These are our monsters, from hereon known as Carriers.' Consequently, Mathieson featured what he felt were key elements – a death and a monster – in his teaser sequence.

Left:
Tasker is the
drill chief
aboard
Chasm Forge.



After the opening titles, inside the TARDIS the Doctor asked Bill to pick a planet and date to visit when the distress call came in. The police box landed in Cargo Bay 1 of a spaceship and the travellers entered the bridge of the *Tarnished Pride*, a cargo freighter which registered no life signs apart from themselves. The distress call had been running three years, two months and 12 days, and opening the shutters the pair looked out at a spaceship graveyard of drifting hulks of different designs.

Right:

Bill puts her spacesuit on.



Survivors

Delighted by the “deadly puzzle”, the Doctor was planning to go to the next vessel to investigate when they were confronted by Tasker, ‘a grizzled unshaven man in a black and yellow hazard tape covered spacesuit [pointing] a very intimidating laser rifle’; four other survivors entered with him: Ivan (‘still in his medic spacesuit’), Dahh-Ren (‘the only obvious alien, spider-like face with a cluster of black eyes. Spacesuit organic looking’), Maddox (‘female, sour faced thirty something... green militaristic space suit, *Metu Vacua* painted on it (*without fear* in Latin). Think Vasquez from [the 1986 science-fiction movie] *Aliens*’) and Karlo (‘hacker, forty something, spacesuit covered in pouches and straps’). Dahh-Ren scanned the new arrivals as not being a threat, while Ivan’s medical kit revealed the Doctor’s two hearts... to Bill’s astonishment. Maddox assumed that the Doctor was lured in by a distress call and now his ship’s engines have died; the survivors could not believe the Doctor’s claims

and decided to move onto the next ship. Bill noticed the life form count increase from seven to 12, with Maddox detecting a pressure drop and knowing that “they” had arrived via Cargo Bay 1. Tasker had the bay blown, expelling the TARDIS with the carriers into space. Ivan explained that they were running from “the dead” as the life form count rose again and the group prepared to go. Tasker had Karlo confiscate the Doctor’s sonic screwdriver, even when he planned to seal the bulkheads across the ship. There was half an hour’s oxygen left, and so the Doctor had to prove that he had useful intellectual and technical skills to be allowed to go with them. The Doctor also pointed out they could breathe oxyacetylene which they could obtain from the ship’s maintenance station. In the airlock, the Doctor and Bill donned spacesuits with the scavenged tanks. Dahh-Ren explained that they were running from the carriers which infected by contact, killing in seconds by touch and making their victims like them; Bill remarked that she didn’t like zombies. Maddox laughed at the danger, telling Bill that her fear centres had been burnt out, while the Doctor tried to close the airlock doors as carriers appeared in the corridor: ‘Tattered spacesuits. Blue eyes glowing. At

Connections: Ouch!

► The Doctor’s rumination “Death, where is thy sting?” is a quotation from verse 55 of chapter 15 of the *First Epistle to the Corinthians* from the *New Testament of the Bible*.



SM FORGE

09

Pre-production

'THE DOCTOR HAD TO PROVE THAT HE HAD
USEFUL INTELLECTUAL TECHNICAL SKILLS.'

least ten.' The survivors fired upon them ('Laser blasts, *Star Wars*-style'). With the airlock operating, the Doctor briefed Bill on how to survive in space... however with her helmet not fully on, 'Ice forms on Bill's skin, veins popping up at her temples... She is staggering, falling. She opens her eyes in panic. They ice up immediately.' Karlo and Tasker used a harpoon-like emergency escape system to fire a line across the void to lock magnetically onto the next vessel: 'an imposing looking warship with visible missile ports. The name ULC *Hammer* stencilled above a huge WWII bomber-style painting of a grimacing hammer knocking nails dead with the slogan "EVERYTHING LOOKS LIKE A NAIL"'

Right:

The Doctor addresses the crew.

Distress signals

Bill passed out and came to with the survivors, whizzing along the cable to *Hammer* and gaining access to the militaristic bridge. Locating a med station, Ivan aimed to treat the recovering Bill, while Tasker allowed Karlo to return the Doctor's sonic... making the Doctor a rival to Karlo because of his hacking skills. Karlo now recalled how his vessel's engines died, and when another stricken ship offered help they were boarded by carriers. The carriers kept setting distress signals to draw in new ships, and the survivors aimed to turn them off. As he treated Bill, Ivan explained that he was a medic on the *Klondike* ("Long range beam-rider out of Corvus") and his wife had died, while Bill explained that she was a dinner lady/student. Ivan told Bill that he would let her "spot" an oxygen cache to prove her value to the group.

On the bridge, the Doctor's party heard Ellie's voice on the radio saying that she was with survivors who had air and food



on the Savannah; Dahh-Ren said this was a trap because Ellie was Ivan's wife. The Doctor and Dahh-Ren discovered that the engines had been killed by spiky blue crystals projecting from one of the asteroids surrounding the ships; these emitted a low frequency resonance field. While Karlo was near despair, Bill 'discovered' the oxygen two decks down on the demolition class *Manowar*... just as the carriers approached the ship. In the corridors, Dahh-Ren sensed danger and the group hid in the dining hall. As the carriers entered, the Doctor shifted the ship's gravity, causing the zombies to fall. The survivors climbed to safety along the bolted furniture, and the Doctor saw Tasker grabbing Karlo and taking his oxygen canister for himself, abandoning the terrified hacker. As Ivan was about to escape the hall, he saw Ellie – a carrier – call out to him, but Bill dragged him to safety.

Reaching a teleporter, the group narrowly escaped the carriers and arrived on a bridge with the 'vibe of the ISS [International Space Station] but should feel old. The most derelict ship



so far.' With oxygen low, the survivors fitted breathing nasal tubes from their suit collars. However, Maddox had been infected by a carrier's touch; the others handcuffed and gloved her. The group discovered that they were on the mining ship *The Crucible* which had food but no oxygen. The infected Maddox told them: "This is where it all began." Outside the window was a massive conveyor belt leading down to a huge asteroid. Somehow Maddox knew what had happened via a collective consciousness, including Ellie. The Doctor questioned Maddox to see how much she recalled of her own life; she remembered Sergeant Bastock who kept a bottle of scotch in his bottom drawer spiked with laxative to catch out the newbies... and knew her mind was still there, possibly because of the surgery on her brain. The ships' logs showed the *Crucible's* crew was mining a strange new crystal, but some of them needed to be restrained. The Doctor spoke to Dahh-Ren, knowing that only the females of their species had the ability to sense danger; she was the last survivor of a crew of 30, but in her race they now all lived on in her. "We have a similar custom with

my people," said the Doctor. "A dozen men died so I could live. I carry them with me everywhere."

Meanwhile, in the weightless food store, Bill talked to Ivan about Ellie. Tasker then asked Bill to earn her keep by checking the port airlock; Ivan realised that this was a trap to dispose of her. Maddox told the others that Tasker planned to kill Bill in the same way that he killed Karlo, McCluskey, Ruffino, Fisher, Hamish "and that guy with the nose, don't remember his name". Tasker fired his laser through Maddox's stomach to silence her and then aimed at Bill... but Maddox was not dead, adding: "And Fredricks. Almost forgot him." However, the Doctor then asked what skills Tasker brought to the group: "hacker, medic, soldier, psychic. But why are you still alive?" The Doctor announced that he was taking over, having used his sonic to deactivate their guns. The carriers arrived as Dahh-Ren admitted that he was faking his sense skills to stay alive. The Doctor said that they needed to jump into the asteroid, linking their suits to give them enough oxygen, but Maddox taunted Ivan with messages from Ellie, getting him close enough to be infected; the infected Ivan then shot Dahh-Ren. As the carriers advanced, Tasker picked up a rifle and attacked the zombies, buying the others time. Dahh-Ren expired as the airlock opened, asking to be "the thirteenth man" the Doctor would carry.

Tethered together, the Doctor and Bill fell through space towards the asteroid

Connections: Fluid link



▶ The Doctor lies to Nardole about fluid link K57 immobilising the TARDIS. The Doctor had previously faked immobilisation of the TARDIS by tampering with mercury fluid link K7 in *The Mutants* (AKA *The Daleks*) [1963/4 - see Volume 1], while the fluid links had also been referred to in *The Web Planet* [1965 - see Volume 4] and *The Mind Robber* [1968 - see Volume 13] as well as blowing in *The Wheel in Space* [1968 - see Volume 12], with the TARDIS requiring mercury to refill it on this occasion before the ship could move on.

Connections: Yo-yo

► The Doctor plays with his yo-yo again as he had done in previous stories including *Robot* [1974/5 - see Volume 22], *The Ark in Space* [1975 - see Volume 22], *Revenge of the Cybermen* [1975 - see Volume 23], *Kill the Moon* [2014 - see Volume 78] and *The Girl Who Died* [2015 - see Volume 81].



Right:

Things heat up on board Chasm Forge.

with limited oxygen left. As they drifted, the Doctor pointed out the star of Brot-Thur orbited by the sentient planet of Bockley Givus which he once saved; Bill realised that the Doctor had already saved her life many times by saving Earth. Almost passing out, they landed in a shallow crater containing skeletons and spacesuits beside the blue crystals... and dozens of carriers including Tasker, Maddox, Ivan and Dahh-Ren clustered around the

conveyor belt connecting a cave to *The Crucible*. The Doctor detonated mining explosives to envelop the crystal... causing the ships to come back to life. However, while the crystal and the Carriers regained their strength, the respite had been long enough for the *Hammer's* missiles to arm and launch into the asteroid... as the Doctor had programmed them to earlier. Similarly, he had pre-set the *Hammer's* teleport to transport them to safety as more missiles destroyed the asteroid and the other trapped ships. The Doctor and Bill arrived safely inside the TARDIS as it tumbled through space.

"You've written too much of a classic *Doctor Who* script," Steven Moffat told Jamie Mathieson when they met to discuss what had not quite been the pared-down space story which Moffat had in mind. Moffat had a new idea for the story, telling Mathieson: "What if the monsters were the suits and they had corpses in?" The writer liked this development, realising that the carriers had taken a back seat to the hunt for oxygen. He was however concerned that the concept of robotic suits was similar to the skeleton in the spacesuit

from *Silence in the Library/Forest of the Dead* [2008 - see Volume 59].

The use of spacesuits allowed the Doctor and Bill to be placed in the same plight as the survivors, fighting the same low-tech battle for survival. Mathieson now determined a reason for the spacesuits killing their wearers, postulating that they were programmed to do so by a sinister corporation which owned the mining ship at work in an asteroid field. At Moffat's suggestion, it was decided that the company could be billing its staff for the use of oxygen and disposing of them when they were no longer economically viable. Furthermore, the company would be Ganymede Systems... and become GUS, the homicidal computer encountered in Mathieson's *Mummy on the Orient Express* which had lured the Doctor into a technological trap. The origins of GUS had been left vague in the finished programme and would now be explained here, setting up the events the Doctor had already experienced. This allowed the writer to tell a "dark fairytale", in which - as he told *Doctor Who Magazine* - "There's a political, capitalism side to the story where the bottom line is that human life is not worth





much.” Mathieson drew on memories of numerous badly paid corporate jobs which he had endured as inspiration.

Another element which the writer emphasised was the effect of space on a human and how it would induce blindness. With the Doctor already isolated from the TARDIS, Mathieson now opted to make the Doctor blind for the second half of his script.

Spacewalk

Taking five weeks to write and retaining only the pre-credits and Bill’s perilous spacewalk from Draft One, Draft Two was dated Wednesday 1 June 2016 and scheduled for Shooting Block 4 as the fifth episode of the 2017 series. The opening sequence now featured two corpses in space: ‘Their spacesuits are the exo-suit like smartsuits and will later be shown to be autonomous. They’re also bearing a monolithic ‘Ganymede Systems’ logo which ISN’T a ‘GS’ for

reasons we’ll get to...’ The corpses drifted towards ‘Chasm Forge, a space station in the middle of an asteroid field’; this station was named partly after the Valley Forge in the 1972 science-fiction movie *Silent Running* and also inspired by the ancient planet Z’ha’dum in the 1990s US series *Babylon 5*. In the opening TARDIS scene, Bill had made a sandwich in the ship’s kitchen, which the Doctor had forgotten was there. The TARDIS landed in ‘a narrow curving space station corridor. It’s a squeeze. Grimy and utilitarian. Doesn’t feel that far from current space station tech.’ The narrative was now far closer to the finished programme with the extended air pocket aboard what the Doctor said was an “early space station”. Bill looked out at the Chasm Forge: ‘Its main body is concentric rings of pre-fab sections slotted together like Lego with odd larger modules. It doesn’t feel that advanced, echoes of the International Space Station. A few struts lead to a nearby asteroid that it’s been mining.’ After scorning *Star Trek*-

Above:
The Doctor
saves
his breath.



"WHAT IF THE MONSTERS WERE THE SUITS
AND THEY HAD CORPSES IN?"

style doors, the Doctor and Bill found the corpse in the smartsuit in the workshop ('Dimly lit. Hanging in bays are a couple of smartsuits splayed hinged open, like iron maidens awaiting occupants (a la [the 2015 video game] *Fallout 4*)') and determined that of the 40 crew only five were left. They then found the empty smartsuit with a dark smoked glass helmet stacking boxes in the hub: 'The suit's voice is female and falsely upbeat. Flight attendant. Lights flicker in time with the voice.' The Doctor and Bill were isolated from the TARDIS, apparently by a faulty airlock, when contacted by the female Second Drill Chief Tasker over the radio. The magnetised corpse – which Bill compared to a zombie – damaged the sonic; Mathieson felt that the danger was greater for the Doctor when his gadgets were disabled. Tasker illuminated the hull to show it covered in corpse suits, and so the travellers donned Ganymede Systems series 12 smartsuits ('In the centre of all smartsuits is a circular lens, their 'eye'. Its ring iris contracts as it focuses') and made it to processing ('a dingy space bisected by a narrow rail track bearing futuristic minecarts filled with rocks'). Here they met Tasker ('a no-nonsense woman in her forties'), Dahh-Ren ('nightmarish alien face like a spider's'), Karlo ('grouchy and sarcastic') and Ivan. Bill's suit glitched and the Doctor suggested using oxyacetylene tanks as an additional air supply. Ivan talked to Bill about working in "the union" and revealed that their food was like baby food, eaten through a tube. Following problems with the conveyors, the base had been declared non-profitable two hours ago with company privileges – including oxygen – cancelled. In the corridor outside, one of the corpse suits looked at the door: 'We see his point of view, infra-red and overlaid with data like the Terminator [from the 1984 science-fiction movie of

the same name].' Karlo explained how the threat of death ("retirement") kept workers "on their toes".

When Tasker was captured in the corridor, 'Electricity arcs across Tasker's skin and her head convulses as she is electrocuted. Her head slumps, smoking.' The group reached the airlock where Bill had a helmet malfunction. 'We fade in and out of silent bursts of imagery from Bill's point of view as she lapses in and out of consciousness' noted the stage directions, this being an economic move by Mathieson to only require an *impression* of the battle on the hull rather than its entire staging. Bill recovered in the power core ('a dark industrial feeling area, a warren of narrow corridors and alcoves. Pipes line the walls which creak and groan. Feels more like a submarine than ever') where a Ganymede Systems logo carried the slogan 'Putting

Right:

Ivan and Tasker fight the suits.



The YOU In User'. When Bill found that she could not move, the suit told her it was offline for diagnostics and played her 'a cheesy lounge version of [the 1962 bossa nova song] *The Girl from Ipanema*'. Ivan told Bill he hadn't seen his wife since she died, while Dahh-Ren explained that a touch from a dead suit would reconnect to the network, initiating the kill command so that the suit battery stopped the wearer's heart. Karlo challenged the blinded Doctor's claims of being from the union, causing the Doctor to explain of his psychic paper (used regularly since *The End of the World* [2005 – see Volume 48]): "It's a universal adapter of a lie. It turns me into whoever I need to be to fit the moment. Sometimes it's a figure of fear or respect, but today I became someone you prayed for, because that's what you needed me to be." He then explained to them that he



was "a Time Lord" and could save them.

The crew then heard the voice of Tasker, terrified among the corpse suits; she had only been knocked out and the suit believed she was dead. Running out of oxygen, Tasker sent the message 'piggyback', an old-mining term meaning a suit-to-suit oxygen swap. However, this plan went wrong, and Tasker suffocated... because of her lack of company credit. Realising this reason, the Doctor called the company at Base Invictus, offering to sell them back the mining station at the cost of five lives, or otherwise exploding the core in five minutes. Bill asked the Doctor if he was immortal, and he explained to her about regeneration and how he had died 12 times.

Connections: In distress

► The Doctor refers to a distress call as being his "theme tune"; various adventures have begun with the Doctor responding to an SOS including *Planet of Evil* [1975 – see Volume 24], *The Invisible Enemy* [1977 – see Volume 27], *The Creature from the Pit* [1979 – see Volume 31] and *Attack of the Cybermen* [1985 – see Volume 40].



Corpse suits

The company allowed the corpse suits – including Ellie – to enter and offer the survivors their oxygen canisters. As Karlo apologised to the Doctor, the face of Kline ('a pompous suited man in his fifties') appeared on a screen, congratulated them on their negotiation tactics, and offered them positions on inner worlds with healthy stock options... and offer which the Doctor said was a lie. Kline arrived in a shuttle with two technicians and two lawyers to hear whistled the Strawb's 1973 tune *Part of the Union* – an illegal tune. The lone Doctor greeted him, knowing Kline, having found buried in the code: 'Acquire any advanced technology for later study'; he knew that he was dealing with GUS, a name he heard

"on a doomed train... far from here. And not for a few years yet. We're meeting out of order, which is always fun." One of the lawyers warned Kline that the core was overloading... and the new arrivals realised that the Doctor was a hologram, projected from inside the TARDIS where the Doctor was slowly regaining his sight. At the TARDIS doors, the miners watched the shuttle flee the station moments before it exploded, and the Doctor told Bill that he recognised Kline's voice, knowing that he had made a new enemy. The miners asked to go somewhere that they could eat and later – alone – the Doctor explained to Bill how he never took risk or danger lightly. She said how she now had far more ambitions than working in a canteen and wanted to save a world which could be renamed Planet Bill. "Do you know I think there already is a planet called Bill," said the Doctor. "Very windy. Quite loud. Hard work." They were watched by the iris on one of the abandoned smartsuits...

Below:

"I was given strict instructions to keep you at the university."

Having submitted the redraft, Mathieson was concerned that the script did not work. Consequently, he was delighted to hear back from Moffat that the script



was better than he had hoped for.

However, once the battle with the corpse suits had been concluded, the arrival of Kline felt anti-climatic by comparison. Consequently, the material relating to GUS was dropped.

During June, it was clear that Matt Lucas' willingness to make himself available to the *Doctor Who* team meant that Nardole – who had been reintroduced in the first episode of the series (then *A Star in Her Eye*, latterly *The Pilot* [2017 – see Volume 85]) – could be included more extensively in the new scripts, rather than being inserted into the narratives with minimal effect as in *The News from Nowhere* (latterly *Smile* [2017 – see Volume 86]). Mathieson was given very little background on the Doctor's valet, whose backstory seemed to constantly fluctuate. With Nardole now added to the mix, this gave the Doctor another confidante and so the production office suggested that Bill could be put through the horrific experience of being trapped with the corpse suits in place of Tasker.

Blind Doctor

Another change that Mathieson decided on was a bold one which he assumed would be rejected.

To emphasise the danger of space, the writer felt that the Doctor could only save Bill at a terrible price to himself and, consequently, the Doctor would remain blind at the end of the story – his bravery having consequences for himself.

Draft Three was dated Wednesday 27 July and now referred to the smartsuits as Smartsuits®. The Doctor gave a lecture about how space killed: "[He] begins to draw on what is revealed as a blackboard rather than darkness. We pull back to reveal a crude diagram of a rocket... He draws an arrow leading from a hatch in



the side of the rocket... begins to draw something outside the drawing of the ship. He does it 'hangman' style, each fact accompanying a new line of the drawing... The image finally comes together, a stylised skull and crossbones with crosses for eyes.' Nardole joined the Doctor and Bill in the TARDIS, happy to go into space as long as he had his earmuffs and telling Bill that his face was "ergonomically designed to elicit trust. Works in seventy nine percent of all humanoid species." The material about the kitchen was omitted and the cubicles containing the smartsuits were described as 'a la *Fallout 4* or [the 2013 film] *Iron Man 3*'. Nardole was added to the action aboard the Chasm Forge. The dialogue about privileges being cancelled two hours earlier was deleted and the team now mined copper ore, with their employers three weeks away. The limited problem solving capability of the suits was emphasised. Bill's eyes no longer iced up in the airlock: 'Vapour billows from them as they boil.' Bill woke in the construction zone 'at the

crossroads of several dark, partly finished corridors. Wiring hangs from ceilings, doorways have no doors, panels and piping are stacked awaiting use.' The corpse suits were outside, not having this area mapped, and Karlo tried to call Ganymede Core, while Dahh-Ren commented that a malfunctioning suit had electrocuted a "new guy" six months ago.

The remainder of the story was now closer to the televised version with Karlo attempting to attack the blinded Doctor, the suits advancing and electrocuting Dahh-Ren, Bill's suit locking up during the escape and her apparent death, the survivors making for the power core, and the Doctor sabotaging the reactor coolant as Bill's voice came on the radio to say that she was still alive. Karlo recalled a protocol to swap oxygen from suit to suit, and learnt that the Doctor travelled in time, asking: "Do things get... any better?" "Eventually. Then worse. Then better again. Then worse. And so on," he replied. Karlo had just saved up enough credit to buy himself out and transfer

Above:
Ganymede
Systems'
Abby struggles
to trust
the Doctor.

Right:
"Like every
worker,
everywhere,
we're fighting
the suits."

to a border world. The Doctor asked about the electrocuted crewman who had always been slacking off; he realised the suit had been operating correctly, killing off the unprofitable. The Doctor contacted Ganymede Core with his offer and the corpse suits – including Ellie and the recovering Bill – advanced, offering oxygen. Whistling *Part of the Union*, the Doctor was guided back to the TARDIS by Bill past the inert corpse suits; a suit touched the Doctor, but he emerged unharmed from his smartsuit, reaching the TARDIS so that the survivors could escape before Chasm Forge exploded. Nardole apparently restored the Doctor's sight with 'what looks like a futuristic bar code scanner. The eyes already looking back to normal.' Ivan and Karlo wanted to go somewhere to eat, and the final scene was now back in the Doctor's study where he was 'wearing sonic shades and playing with his yo-yo'. The Doctor told Bill about regeneration and then – after she had gone – removed his shades: 'He begins feeling items on his desk, checking their locations. In the process he knocks off a mug which smashes. It's obvious he's still totally blind.'

"I genuinely thought Steven would say, 'No, you've gone too far. Cut it, put something else in.' He went: 'No, I love that idea. In fact I'm going to carry it on past that episode,'" recalled Jamie Mathieson on *Doctor Who* Interactive. Moffat was amazed at this idea, commenting, "I've never seen that in *Doctor Who* before"; he was also keen that this act of bravery by the Doctor should not be trivialised by a quick cure at the end of the story. Consequently, the Doctor's blindness would be incorporated into both the sixth episode of the series (*Extremis* [2017 – see page 58], and the seventh episode (*First Contact* (number 122), latterly *The Pyramid at the End of the World* [2017 – see page 102]) when they



subsequently began scripting; Mathieson was delighted to add to the mythology of the series in this way.

In Draft Four – dated Monday 1 August – the two corpses in the opening shot had extra description: 'Leading from their noses to the suits, nasal breathing tubes.' Tasker was now 'a no-nonsense grizzled man in his forties' while Karlo became Abby. Radio contact with Ganymede Core was dropped; instead Abby detected the rescue ship's transponder. It was now the comment from the Doctor's suit about being fined for damage to company property which made him realise the monetary implication of the situation and how the rescue ship contained the crew's replacements. Abby no longer talked about her savings as Karlo had done. The oxygen swap attempt to save Bill came later as the Doctor told the company that their deaths could cost 75 billion credits with the loss of the station. The sequence of returning to the TARDIS was omitted as was the station's destruction, and after dropping Ivan and Abby somewhere for



lunch the closing scene in the study played out as before.

Able to draw upon more of Nardole's character and function from *The Pilot* which had been recorded in June and July, Mathieson expanded the valet's interaction with the Doctor. The production office also felt that the elements of the sentient suits and the value of oxygen did not fit together, suggesting that the oxygen theme should be reduced with a corresponding change of title. Mathieson was unsure about this, and during his redraft ensured that the two elements instead became more closely tied.

Director Charles Palmer

Issued on Thursday 25 August, Draft Five was entitled *Zero Hour*. This version omitted the use of the nasal breathing tubes which Moffat had disliked. The Doctor and Bill departed on their adventure in the TARDIS not knowing that Nardole was aboard until he entered the control room; the valet now reprimanded the Doctor for not guarding the vault

Pre-production

at every opportunity. The idea of the smartsuits having a forcefield around the wearer's face was added. Because budget restrictions had ruled out a spider-like prosthetic, Dahh-Ren now had 'a bright blue face with cat-like pupils'. The graphics on the suit displays as they listened in on the conversation of the survivors were added. While trapped in the power core, Ivan read out a message from somebody on the station offering to sell them oxygen, with Abby commenting that the company's desire to kill them wasn't conflicting with the profit algorithm; this inspired the Doctor's plan. The protocol to swap oxygen to Bill's suit was now totally omitted. In the closing scene, the Doctor's discussion of regeneration was reduced; instead, the Doctor and Bill discussed the adventure and Bill warned him about not risking her life on a hunch. The script ended with Nardole realising that the Doctor was blind.

Jamie Mathieson feared that the oxygen element of the new draft was still too much for what the production office wanted, but discovered that the BBC Cymru team was delighted with his revised version. By now, a director had been appointed

Below:
Bill celebrates
being alive
by giving
the Doctor
a big hug.





Above: Dahh-Ren and Nardole don their smart suits.

for Block 4; this was Charles Palmer who had directed *Smith and Jones* [2007 – see Volume 54], *The Shakespeare Code* [2007 – see Volume 54] and *Human Nature/The Family of Blood* [2007 – see Volume 56]. Since then he had worked on episodes of *Lark Rise to Candleford*, *Agatha Christie's Marple*, *Death in Paradise*, *By Any Means* and *Poldark*. Palmer's father, Geoffrey Palmer, had been in *Doctor Who and the Silurians* [1970 – see Volume 15], *The Mutants* [1972 – see Volume 18], and *Voyage of the Damned* [2007 – see Volume 57]. Block 4 would also feature *The Eaters of Light* [2017 – see Volume 88], then scheduled as the ninth episode of the series and brought forward from Block 5. These episodes would be produced by Nikki Wilson.

Once again named *Oxygen*, Draft Six of the script was issued on Friday 16 September. Chasm Forge was now introduced in the opening sequence as 'two concentric rings of corridors. Protruding from one of the rings, a huge radio dish on a laticed girder.' The action for Ellie and Ivan was slightly changed, and it was

noted that 'close on the boots, we see MAG stencilled on their sides as a clue. They light up and attach to the "floor" with a clunk.' On the airlock wall where the TARDIS appeared was 'a poster with the slogan SAVE YOUR BREATH, a stylised oxygen canister and a cross over someone's mouth. Feels like 1940s propaganda.' The workshop where the travellers found the empty smartsuit became a repair station, and the suit forcefield now covered 'nose and mouth'. Bill's comments about it being like a horror movie were reduced, all remaining references to zombies omitted, and the distances around the station being measured in breaths was added. The miners now used 'spring-loaded "flatpack" helmets from hip pockets, popping them into shape in a second before twisting them over their heads'. The propaganda poster in the construction zone now read 'LOOK AFTER YOUR SMARTSUIT AND IT WILL LOOK AFTER YOU' and the suit now played the 1939 song *Aquarela do Brasil* to Bill instead of *The Girl from Ipanema*. Bill commented on the Doctor

being 2,000 years old (as he had told her in *Smile* and *Thin Ice* [2017 – see Volume 86]) and again it was the warning about damage to property that inspired the Doctor's plan of offering to buy oxygen. In the final scene, the Doctor now told Bill about the rebellion six months later.

Promotional trip

Following work on Block 3 – the Christmas Special, latterly known as *The Return of Doctor Mysterio* [2016 – see Volume 85] – at the start of October, the show's stars Peter Capaldi and Pearl Mackie joined executive producers Steven Moffat and Brian Minchin in a promotional trip to Toronto in Canada where *Doctor Who* was a popular show for the Space channel. On Wednesday 5 October, Capaldi and Moffat chatted to Melissa Grelo on CTV's *Your Morning*, after which Capaldi and Mackie spoke to E Online Canada and etalk before the visitors assembled at Space Channel HQ to record a special edition of the channel's magazine programme *InnerSpace*. Hosts Teddy Wilson, Morgan Hoffman and Ajay Fry interviewed Capaldi and Mackie (having escaped from the Daleks using the

TARDIS) as well as having them answer fan questions, and Mackie saw a message from her secondary school drama teacher, Miss Dunn.

The *Doctor Who* celebrities then travelled to New York to appear on a panel at New York Comic Con held at The Theater at Madison Square Garden on Friday 7 October; here they were joined by Matt Lucas as a surprise guest,

commenting humorously of his return to *Doctor Who*: "I love the rain and it rains a lot in Cardiff. I love the cold weather. I love paying for my own breakfast and lunch."

Meanwhile, Steven Moffat continued to help Jamie Mathieson refine *Oxygen*.

Draft Seven – dated Tuesday 11 October – saw the introduction of the Doctor's opening narration: "Space – the final frontier" mirroring the opening narration of the 1960s US science-fiction series *Star Trek* and its 1980s sequel *Star Trek: The Next Generation*. Nardole was now present at the Doctor's lecture, and the scene of them checking the vault was added along with alterations to the opening TARDIS scene (dropping Nardole's references to his ergonomic face and inserting the requirement for crisps from Birmingham). Nardole also held up a fluid link which 'looks like a Doctor version of a data stick'. The countdown to the jettisoning of the oxygen was added, along with Nardole recognising the voice of the smartsuit. The idea of using the oxyacetylene canisters was omitted along with the food from the suit, and Bill discussing the risks that the 2,000-year-old Doctor took. When terrified by the corpse suits, Bill thought of her mum: 'the tiniest flicker of a shot, Bill's mum. The photograph she pinned to the wall in Ep 4 (*Knock, Knock* [2017 –

Connections: Breathe

▶ The air shell around the TARDIS has previously been used in *The Horns of Nimon* [1979/80 – see Volume 31], *The Beast Below* [2010 – see Volume 63] and *The Time of Angels/Flesh and Stone* [2010 – see Volume 64].



Left: Nardole expresses his concerns to the Doctor.

see Volume 86]). For a moment, it seems animated – the eyes seem to move, the face frown in concern'; this was to emphasise Bill's connection with her mum which was a key element of the then-untitled eighth episode of the series, latterly known as *The Lie of the Land* [2017 – see Volume 88]. Safely aboard the TARDIS, Abby now wanted to lodge a complaint at head office. In the study scene, the dialogue was substantially changed, omitting the explanation of regeneration and Bill's warning about putting her life at risk. A new scene now ended the script – something battering at the vault doors.

Shooting script

The readthrough for Block 4 took place at 1.30pm on Wednesday 12 October at The London Welsh Centre on Gray's Inn Road in London. Cast as Ivan was Kieran Bew whose television credits included *Crusoe*, *Personal Affairs*, *WPC 56*, *Da Vinci's Demons* and *Beowulf: Return to the Shieldlands*; Bew had also recorded the *Doctor Who* audio adventure *The Lady of Mercia* in January 2013 and had just completed another *Doctor Who* audio drama, *The Helm of Awe*; he was also suffering from the after-effects of a surfing accident in Santa Monica which had injured his back. Charles Palmer had previously directed Justin Salinger in *Murder by Magic*, an episode of *Midsomer Murders* made in 2014, and the actor was now cast as Tasker, having also featured regularly

in *The Mill*. Actor and singer Peter Caulfield played Dahh-Ren, having featured in Channel 4's *Cucumber* and its spin-off *Banana* after extensive stage work (including *Obama-Ology* with Pearl Mackie in 2014) and also the *Doctor Who* audio adventure *Cold Fusion* in May 2016. Former RSC alumnus Mimi Ndiweni was cast as Abby, having featured in ITV's *Mr Selfridge* after being comparatively new to television, as was Katie Brayben who played Ellie; Ndiweni has also worked on *Big Dig*, part of the *Bernice Summerfield* audio drama series.

"Love love love your script" tweeted Matt Lucas to Jamie Mathieson on Friday 14 October; the actor was delighted that *Oxygen* allowed Nardole to fully join the Doctor and Bill on their adventures after

Right:
Dahh-Ren
and Tasker.



the valet's minimal roles in the earlier episodes. On Sunday 16 October, Peter Capaldi attended a talk featuring his wife, creative director of BBC drama Elaine Collins, at the Cheltenham Literature Festival. He was very taken with the script for *Oxygen*, particularly with regards the Doctor's attitude to his blindness, not making other people feel that they had to look out for him.

The shooting script for *Oxygen* was issued on Monday 17 October, omitting the comparisons of the smartsuit cubicles to *Fallout 4* or *Iron Man 3* and naming Nardole's old girlfriend as Velma. As the trio donned their suits 'a rigid exoskeleton shucks into place around each of them... joints clamping shut... Bill's face as a solid collar forms around her neck... We see a shimmer of the forcefield appear around their noses and mouths.' The sequence which Jamie Mathieson had liked of Bill revealing that she was still alive among the corpses was now omitted at the suggestion of Steven Moffat; although the scene was effective, it got in the way of the Doctor reaching a solution. The comments about the earlier fatality from a suit had also been dropped and it was now Bill who used the laser cutter to try to enter the power core, with the Doctor wiring the survivors' lifesigns into the coolant system and new dialogue as the Doctor told Abby of his plan prior to the confrontation with the suits. Steven Moffat also added the line: "Like every worker, everywhere - we're fighting the suits."

The story also gained a chronology. The death of Ellie took place on Day X while the Doctor's lecture was at 09.10 on Day 1 before he and Nardole checked the vault at 15.45 and he considered the stars at 21.05 on Night 1. The Doctor offered Bill a TARDIS trip at 09.20 on Day 2, with their arrival on the Chasm



Forge at 09.24. They entered the hub where the suit stacked boxes at 09.29, the oxygen was vented at 09.32 and the suited travellers met the survivors at 09.39. Ivan checked on Bill's suit in the mech bay at 09.50 and the group lost Tasker at 09.54, spacewalking at 10.02 and Bill recovering in the construction zone at 11.30. Bill's suit jammed in the corridor at 11.38 and the climactic confrontation at 11.41. The group escaped in the TARDIS at 13.00, arriving back in the study at 10.00 on Day 3 and the sounds of banging from within the vault at 10.02.

The corpse suits were to be performed by movement artists, many of whom had worked on *Doctor Who* playing monsters before; they were rehearsed in advance of the recording by choreographer Ailsa Berk. Millennium FX created two different sets of prosthetics for the crew victims depending on whether they had been suffocated or electrocuted. Actor Jon Davey undertook a camera test for Millennium FX where it was felt that the initial look of the corpses was too horrific and so toned down for production. ■

Above:

The spacesuits are making Bill anxious.

'A TEST OF THE SPACESUITS
WAS CONDUCTED.'





Production

Recording on *Oxygen* began on Monday 17 October with work scheduled from 7.30am to 7pm (standard studio hours) in Studio 4 at Roath Lock where the Chasm Forge airlock one, corridor and workshop had been constructed adjacent to the TARDIS. Only the regular cast of Peter Capaldi, Pearl Mackie and Matt Lucas were required, the latter having a fitting for Nardole's spacesuit earlier that morning, before

the recording of the sequences where the travellers explored the airlock in which the TARDIS (the 2013 prop, although the 2011 prop was used for later scenes of the TARDIS being sucked away) had landed and the adjoining corridor as well as finding the dead body in the workshop. Lucas ad-libbed Nardole's comment about the TARDIS: "Lovely in there. Nice and cosy." Fiona Walsh of Millennium FX applied the prosthetics to turn supporting artist Tim Reid into the electrocuted

Connections: Social media

▶ The Doctor makes reference to the smartsuits being able to update the wearer's Facebook, the online social media and networking service launched in February 2004. Later, he thinks he is tweeting, a reference to the online microblogging site Twitter launched in July 2006.



Right:
Recording a scene with corpse Tasker.

miner, a test of the spacesuits was also conducted with regards to sound recording in the helmets, and recording for the day was covered by Marc Evans and Geoff Evans of *Doctor Who* Interactive.

Tuesday 18 saw more work in Studio 4 in the hub (a partial redress of the airlock set) and the workshop for the travellers' encounter with the headless suit (the performer's head being removed in post-production) and then the destruction of the sonic.

While the regular cast was busy in studio, Justin Salinger, Peter Caulfield, Mimi Ndiweni and Kieran Bew attended costume and make-up sessions, with contact lens technician Justine Griffiths supervising the use of the lenses required for Dahh-Ren and Becca Smith of Millennium FX performing a prosthetics test on Salinger as the doomed Tasker. On set, because Peter Capaldi was known as "PC", Caulfield's alien make-up led to him being nicknamed "Blue Peter" by first assistant director Simon Morris.

Many spacesuits were used for recording on Wednesday 19, with the suits allocated numbers: one for the Doctor, two for Bill, three for Nardole, four for Tasker, five for Dahh-Ren, six for Abby, seven for Ivan, with suits four to seven initially used for the supporting artists playing the dead miners in addition to suits eight to 11; the suits were quite heavy for the actors to wear and had lights housed in their arms and backpacks, with working fans inside the helmets (which also incorporated lights). "Even taking them off to go to a toilet in a break took about 10 minutes," Pearl Mackie commented on the challenging garb to *Doctor Who Closer Look*. While



Fiona Walsh again supervised prosthetic work on the electrocuted crewman, the swollen corpses (many with bulging eyes moulded into their masks which restricted the performers' vision) were attended to by her Millennium FX colleagues Becca Smith, Sangeet Prabhaker, Jocelyn Bennett-Snewin, Rhiannon Morrell, Freya Hargreaves and Francesca Bernardelle. The material in the workshop was largely completed barring the wirework for the decompression, after which the reaction of the travellers on seeing the Chasm Forge hull was recorded and then the scene of the trio reluctantly suiting up for survival. After the TARDIS was removed from the hub/airlock set, the Doctor's party going to meet the survivors was recorded with the supporting artistes. The corridor scene leading to Tasker's demise was then performed.

The team remained in Studio 4 on Thursday 20, first of all completing the previous day's corridor scene with Justin Salinger now in the corpse prosthetic and also recording the communication conversation with the Doctor; Peter Caulfield was only required for a prosthetics



test during the day while Steve Painter joined the Millennium FX team. The team then moved to the standard TARDIS set to record the rescue of Ivan and Abby (during which Peter Capaldi changed the line “the universe is your oyster” to “the universe is your crustacean”), and the Doctor asking Bill to pick a campsite.

Aberthaw Power Station

The cast and crew – armed with protective garb and warned to stay within designated areas – arrived to record in the freezing environs of Aberthaw Power Station in the Vale of Glamorgan from 7.30am to 7pm on Friday 21; this venue was close to where beach sequences had been recorded for *Mummy on the Orient Express* in May 2014 and the station had also been seen in *Last of the Time Lords* [2007 – see Volume 56]. This provided the industrialised setting for the processing area where the travellers met the survivors and learnt about the situation. Another of Matt Lucas’ ad-libs as Nardole was his comment to

Dahh-Ren: “All right? Some of my best friends are blueish.”

Pink amendments to the script for *Oxygen* on Monday 24 October reinserted the comments from the suit computer about being fined for dying, now coming from Bill’s jammed suit in the corridor. Recording resumed at Aberthaw Power Station at 7am with the scene where Ivan inspected Bill’s glitching spacesuit in the mech bay and then the remainder of the processing area scenes as the survivors grabbed helmets and departed. This concluded the work for the day for the guest cast, with their suits accompanying the regular cast back to Roath Lock to be worn by supporting artists for the scene of the TARDIS party approaching processing in the long corridor in Studio 4. It was here that Jamie Mathieson dropped by to see his latest script being brought to life, accompanied by young Ivan and his parents who were also shown around the TARDIS set; the writer was suitably unnerved by the realisation of the corpse suits.

The team remained at Roath Lock on Tuesday 25 working in Studio 4 to complete the sequence of the Doctor and

Below:
Bill’s suit
attacks.



Bill donning helmets in the airlock; this was not easily accomplished for Pearl Mackie because of the hairstyle sported by Bill. There were then make-up changes for Justin Salinger and Peter Caulfield, after which work continued on the long corridor set for the sequence where the Doctor was forced to leave Bill behind; this included the make-up change for Mackie to show the student's apparent fate. During the day, a photocall for the guest cast and the iconic shots of the regular cast was also scheduled.

The episode's climax in the power core was recorded on location at the premises of the solar cell manufacturer G24 in Newport on Wednesday 26, previously visited for the recording of *Sleep No More* [2015 – see Volume 83] in July 2015. These scenes – for which Fiona Walsh supervised the prosthetics for Ellie's corpse – were concluded on location on

Thursday 27, allowing breaks so that three of the smartsuits could be transferred from Kieran Bew, Mimi Ndiweni and Katie Brayben to the supporting artists for the scenes of Bill cutting through the lock with the laser. Choreographer Ailsa Berk was present to rehearse the corpse suit performers in their movements, and Danny Marie Elias joined the Millennium FX prosthetics team. The Doctor's speech about "every damn penny" being taken from the station was amended to remove the expletive, while Abby's subsequent order to "open the damn doors" was similarly changed. The cuddle, which Nardole joined in with, was an unscripted improvisation which Lucas had recalled from a gag which his *Little Britain* collaborator David Walliams had done on the BBC comedy *Cruise of the Gods*. Work on location concluded by 3.50pm, with the unit then returning to Roath Lock

Below:
Recording
the Doctor's
lecture scene.





and the two scenes in the vault chamber were recorded in Studio 1 where the set seen in *The Pilot* had been erected. Work went smoothly, with the team wrapping at 6.50pm.

Corpse prosthetics

The second week ended with more work at Roath Lock. The main unit recorded the demise of Ellie and her attack on Ivan against a black screen in Studio 3 for the pre-credits; Belinda McGinley acted as stunt co-ordinator and played the female corpse seen at the start of the episode, with Elliot Murray as her colleague. Prior to this in Studio 4, a B camera had recorded shots of six corpse suits in the corridor as seen over Nardole's shoulder, with Murray having stood in for Matt Lucas. Katie Brayben then went to have her corpse prosthetics applied while Peter Capaldi, Pearl Mackie and Kieran Bew recorded the inserts glimpsed by the barely conscious Bill during the spacewalk. The smartsuits worn by the stunt performers were transferred to the supporting artistes for this recording, and then donned again by McGinley and Murray when Brayben was ready in her

corpse make-up to conclude the attack on Ivan.

Work on *Oxygen* resumed on Monday 31 with the scenes of Bill recovering in construction zone 12 (in Studio 4) and the crew then being attacked again with the loss of Dahh-Ren. Again, there was careful co-ordination of suits to swell the support artists' numbers, and a recording break for Peter Caulfield's make-up to be altered after Dahh-Ren's death.

Tuesday 1 November began with the recording of Bill's discovery that the Doctor had been blinded in the construction zone in Studio 4. After this, a B camera captured shots of Ivan's boots magnetising to the hull and the feet of a corpse landing near Ellie in the black screen area in Studio 3 while the regular cast members changed out of their smartsuits; the feet were played by script editor Nick Lambon and assistant script editor Emma Genders. The B camera also recorded an insert of the sonic being pulled out of the Doctor's grip with Gareth Weekley doubling for Peter Capaldi as the familiar prop was plucked from his hand on a fine wire. Work concluded for the day with the scenes in the standing set of the Doctor's study in Studio 2, and by now the guest cast for the serial had been cleared.

Wednesday 2 November saw the start of work on location for *The Eaters of Light* with Peter Capaldi and Matt Lucas, after which Pearl Mackie joined the unit at the Reardon Smith Lecture Hall at the National Museum of Wales – as used for *The Pilot* during July – to record the Doctor's lecture with the regular cast, as well as Nardole questioning the Doctor's wisdom about

Left:


Ellie tells Ivan she wants to have a baby with him... moments before she is killed by her suit.

Connections: Space walk

▶ In *Four to Doomsday* [1982 – see Volume 34], the Doctor had been able to spacewalk with an open helmet supplying oxygen and no spacesuit, commenting that he could withstand sub-zero temperatures for six minutes.







'NIKI DE JONG WAS NOW PART OF THE
MILLENNIUM FX TEAM LOOKING AFTER
THE CORPSE PROSTHETICS.'



Above:
The Doctor
snaps
a photo.

going into space. For the lecture sequence, numerous takes were performed with the 50 supporting artists seated in different positions to apparently fill the entire hall via post-production manipulation; the speaking student was played by assistant director Lauren Pate. The main unit wrapped at 6.30pm with the replication unit completing work by 7pm.

Jamie Mathieson was announced as the writer of the fifth episode of the 2017 series on Wednesday 16 November, telling the BBC: "I'm back baby, and beyond stoked to be once again putting words in the mouths of the TARDIS crew." He described his script as "a taut thrill ride, a gag fest [and] a pitch-black satire".

On Friday 18, a second unit recorded inserts mainly for *Oxygen* from 7.30am to 7pm. Work began with Pearl Mackie in Studio 4 on the greenscreen set for the donning of the suit, followed by cutaways of her wrist monitor; Mackie then shed

her smartsuit to record the remainder of the greenscreen element for the suit-up scene, after which she joined the main unit working on *The Eaters of Light*. Supporting artists and doubles were then used for the rest of the day on shots of the corpses around the space station and on the hull, plus signs and display monitor inserts, a close-up of the Doctor taking the circuit board from the suit, and of the Doctor and Ivan popping their helmets into shape; unit medic Glyn Evans doubled for Peter Capaldi while supporting artist Jacob Nwogu played Ivan. Niki de Jong was now part of the Millennium FX team looking after the corpse prosthetics.

Wirework

The wirework was undertaken on Tuesday 22 November, the last main day of Block 4. A second unit recorded from 7.30am in Studio 4 on the greenscreen stage where stunt arranger Crispin Layfield supervised wirework sequences for Belinda McGinley and Elliot Murray as the drifting corpses at the start of the episode, and again for the battle sequence as the corpses spun away into space. Following work on *The Eaters of Light*, Pearl Mackie changed costume into her denim jacket from *The Pilot* and joined Peter Capaldi and Matt Lucas in Studio 4 to record on the workshop set; here they undertook the decompression wirework scenes and also reshoots of the scene with the discovery of the suited corpse (to tone down elements of the corpse make-up and minimise its appearance in the original scene), wrapping by 5.40pm to allow Lucas to rejoin the main unit. The regulars found the sequence strenuous to perform several times to get the required shots.

Block 5 began work on Wednesday 23 November, and the following week on

Wednesday 30 two units completed work on Block 4. The main unit worked in Studio 4 to finish the wirework elements of the pre-credits with Crispin Layfield supervising Kieran Bew and Kate Brayben who were doubled by Belinda McGinley and Elliot Murray, with the two stunt performers also appearing as corpses. Bew took time out to talk to the *Doctor Who* Interactive team about the spacesuits and wirework. The mast which the space miners moved along was a reuse of the mast from the Empire State Building used on *The Return of Doctor Mystero* some weeks earlier.

A number of vault scenes with the Doctor and Nardole were subsequently written for *Thin Ice*, *Knock Knock* and *Oxygen* by Steven Moffat and issued on Thursday 26 January 2017. This resulted in a few alterations to the final scene of *Oxygen*, noting that at the end of the episode the viewer saw beyond the vault

doors to where a piano was playing the jolly 1929 song *Happy Days Are Here Again* by Milton Ager and Jack Yellen. The script now noted: 'The pianist is Missy! And she's fascinated, alert – something has changed in the world and she can feel it...'

Charles Palmer returned to direct the shot of the vault chamber and also the new scene for *The Eaters of Light* on Wednesday 22 February, taking over the second unit from Bill Anderson after the recording of the new ending for *Thin Ice* and then handing back to him for the concluding scene of *Knock Knock*. He then went to Mount Stuart Square in Cardiff, briefly taking over the main unit from Wayne Yip (who had been directing material for *The Lie of the Land*) at the Coal Exchange and recording the shots with Michelle Gomez at the piano. This new sequence was appended to the shooting script as a blue rewrite on Wednesday 8 March. ■

PRODUCTION

Mon 17 Oct 16 BBC Roath Lock Studios: Studio 4 (Space Station – TARDIS Airlock/Corridor/Chasm Forge/Workshop)

Tue 18 Oct 16 BBC Roath Lock Studios: Studio 4 (Space Station – Hub/Workshop)

Wed 19 Oct 16 BBC Roath Lock Studios: Studio 4 (Space Station – Workshop; Chasm Forge; Space Station – Corridor (from Workshop)/Hub/Crossroad Corridor)

Thu 20 Oct 16 BBC Roath Lock Studios: Studio 4 (Space Station – Crossroad Corridor; The TARDIS)

Fri 21 Oct 16 Aberthaw Power Station, Vale of Glamorgan (Space Station – Processing)

Mon 24 Oct 16 Aberthaw Power Station (Space Station – Mech Bay/Processing); BBC Roath Lock Studios: Studio 4 (Space Station – Corridor (Long))

Tue 25 Oct 16 BBC Roath Lock Studios: Studio 4 (Space Station – Corridor/Airlock (Long)/Corridor (Long))

Wed 26 Oct 16 G24, South Lake Drive, off Imperial Way, Newport (Space Station – Power Core)

Thu 27 Oct 16 G24 (Space Station – Power Core); BBC Roath Lock Studios: Studio 1 (Vault Chamber)

Fri 28 Oct 16 BBC Roath Lock Studios: Studio 3 (Chasm Forge (Black Screen Stage)); Studio 4 (Space Station – Corridor (Long))

Mon 31 Oct 16 BBC Roath Lock Studios: Studio 4 (Space Station – Construction Zone 1)

Tue 1 Nov 16 BBC Roath Lock Studios: Studio 4 (Space Station – Construction Zone 2); Studio 2 (Study; Study Window); Studio 3 (Chasm Forge;

Space Station)

Wed 2 Nov 16 Reardon Smith Lecture Hall, National Museum of Wales, Park Place, Cardiff (University/Lecture Theatre)

Fri 18 Nov 16 BBC Roath Lock Studios: Studio 4 (Greenscreen; Space Station; Space Station – Workshop/Corridor/Airlock/TARDIS Airlock)

Tue 22 Nov 16 BBC Roath Lock Studios: Studio 4 (Chasm Forge; Greenscreen; Space Station – Workshop)

Wed 30 Nov 16 BBC Roath Lock Studios: Studio 4 (Space Station (Black Screen Stage); Chasm Forge (Greenscreen Stage))

Wed 22 Feb 17 BBC Roath Lock Studios: Studio 1 (The Vault Chamber); Coal Exchange, Mount Stuart Square, Cardiff (The Vault)



Post-production

Above:

Nardole, Bill and the Doctor don't like what they find on board Chasm Forge.

Post-production elements for *Oxygen*, such as CGI, were required on various scenes, notably the space sequences, shots of the exterior of the Chasm Forge, the head-up displays inside the smartsuits, the audience at the lecture, the starry sky outside the Doctor's office, the headless smartsuit, the TARDIS trio donning their suits, the view seen by the smartsuit cameras, the electrocution and freezing deaths, and some of the Chasm Forge displays aboard the Class 47 mining station. Peter Capaldi's eyes were also treated to make the Doctor appear blind.

Comparatively minor trims were made to the finished episode to bring it down to 45 minutes. In the opening scene, extra voice-overs were added to emphasise oxygen levels and the use of magnetic boots. When Ivan commented that they couldn't waste oxygen, Ellie said to herself: "We'll find some more. We have to." It was at this point that the two corpses appeared before her; Ivan bypassing the controls on the access hatch originally came later.

At the start of the scene in the vault, as the Doctor worked on the door he said: "Cresting in the Soft Band, rising in the Zebras, stop frowning." In the TARDIS, when Nardole commented

that he had swapped his old face for his current one while on the run, he added: "Very expensive." "Really?" asked Bill incredulously. "Rude..." observed Nardole. After Nardole insisted that he was acting under the Doctor's orders, the Doctor pointed out: "This is a time machine! I can get us back before we left." "You told me you'd say that," countered Nardole. "And I was right," said the Doctor.

When the Doctor asked the suit computer what killed the crew of the station, Nardole continued to reminisce about the orange actress who dumped him: "Fun while it lasted, though." Tasker originally gave his rank as "Second Drill Chief Tasker". After the corpse was caught in the plasma discharge, the Doctor tapped the microphone he had been speaking on and said: "Hello, are you there? Hello? Hello?" There was simply static, so he picked up his broken sonic.

120 breaths

In the processing area, when Abby said that the corpses were swarming around the airlock where the TARDIS was, Nardole commented: "That's a little 'glass half empty' isn't it?" Consulting the map, after Abby remarked it was 120 breaths to the core, she originally continued: "If the base wasn't crawling with suits"; this was changed in ADR. After Dahh-Ren commented on the least productive day for the station in months, the Doctor asked: "Because?" "The conveyors are broken. I'm sure we mentioned," replied Abby. When Ivan noted that the west corridor was clear, he originally said it was 40 breaths to the stores rather than the core.

In the airlock, before Bill asked what happened if she threw up in her helmet she originally said: "Okay. So I'm going into



Above:
Tasker and the Doctor get to work.

space. Just a normal space walk..." When she later recovered, Ivan's explanation that the Doctor hacked her suit and walked her out was added in ADR (additional dialogue recording); his comment about the suits needing a floorplan similarly replaced his comment: "They can't even see here." After Ivan said that he didn't know how the Doctor survived in space without a helmet, Bill looked at Nardole and said: "Yeah. He's not exactly... normal." "We tried to get back to the TARDIS but there were too many of them," explained Nardole, while Bill noticed that Ivan had moved towards the watching suits. "Are you alright Ivan?" she asked as Ivan took a step back, replying: "Sorry. It's just... my wife's body's out there.

Below:
Survivors Ivan and Abby.





Above:
Bill struggles
to keep calm.

Somewhere.” “Oh god. I’m sorry,” said Bill as Ivan replied, ashamed, “Haven’t seen her since she died. But there’s a bit of me that really wants to. Is that weird?” “No. But I doubt it’s a good idea,” said Bill. “I know it’d be painful and horrible and wrong. But at least I’d see her again...” began Ivan, tailing off to silence. “I miss all my wives. Even the ones that want to kill me,” said Nardole to himself, as Bill gestured to him to be silent. “Sorry. We should get back,” said Ivan, moving off, leaving Nardole to talk to Bill about the Doctor.

When Bill found the Doctor, he was talking to Dahh-Ren, saying: “So one touch from a dead suit puts you back on the network. And the kill command is passed on.” “Yes. To your suit battery. And your own suit kills you,” agreed the crewman. Abby was working to one side on the radio, saying: “Look, this is pointless. Yes, the dead suits have oxygen, but we can’t even get close... mining station Chasm Forge calling Ganymede Core. Come in.” There was only static in reply. When the Doctor introduced himself to Abby, she asked: “And who’s the Doctor?” “On a bad day, the last face you’ll ever see,” said the Doctor. “On a good day?” asked the miner. “The only story you’ll ever tell,” replied the Doctor. “That doesn’t even mean anything,” retorted Abby as the Doctor pledged to save their lives.

In the power core, Abby told the other survivors: “Security’s tougher, but on the downside, there’s only one way out.” As an alert sounded, she commented: “They’re through the second lock. Two down. Two to do.” “Rescue ship’s too far out. We don’t find oxy...” began Ivan, with Abby adding: “We’ll be dead before they get here.” When the Doctor commented on the miners becoming inefficient, he echoed their earlier remark about the convertors being down: “This was your worst week ever.” When the Doctor told the miners that their rescuers were actually their replacements, he added: “New organic components. While the old ones are thrown away.” After the Doctor told the suits that company was about to make the biggest loss in history, Nardole asked: “What’s happening? What are they doing?” “Sums. They’re doing sums,” said the Doctor before he continued his speech. After the corpses gave the survivors the oxygen, the console chimed and Abby picked a piece of paper from the printer commenting: “It’s the receipt.”

Missy in the vault

Back in the TARDIS, after the Doctor said he tried never to tell his enemies his secret plans, Bill added: “Or maybe you just like maxing out everyone’s adrenaline.” “Maybe. How does it feel?” asked the Doctor. “Pretty okay,” agreed Bill. “Don’t get hooked,” the Doctor warned her. “Too late,” said Bill, to which he replied, “Good.” The episode was to have closed on a shot of the pianist in the vault being revealed as Missy.

Because of the cliffhanger ending with the Doctor’s blindness, the trailer for the following episode, *Extremis*, was placed at the end of the closing credits, before the executive producer caption. ■

"OKAY. SO I'M GOING INTO SPACE."



Publicity

Above:
The Doctor
sonics his
way through
Chasm Forge.

▶ Writer Jamie Mathieson and actors Mimi Ndiweni and Kieran Bew joined Christel Dee to record the reaction show for *Oxygen* for *Doctor Who: The Fan Show* at the Multichannel Studios in London on Wednesday 3 May 2017. *Doctor Who Magazine* Issue 512 was published on Thursday 4 May and included a two-page preview with Mathieson chatting to Peter Griffiths.

▶ A preview clip for *Oxygen* was released on Sunday 7 May, offering a 40" glimpse of the TARDIS trio's realisation that their vital air supply was about to be expelled. A 20" trailer for the adventure was released on Tuesday 9, the same day that Mark Braxton nominated *Doctor Who* as part of the *Saturday Choice* in *Radio Times*; alongside a shot of the spacesuited

Doctor with Chasm Forge reflected in his helmet, Braxton commented on the new series' 'fresh drive' and the episode's 'distinctive direction from Charles Palmer'. Steven Moffat then introduced *Oxygen* in a 22" video on Wednesday 10, followed by Peter Capaldi and Pearl Mackie's own 42" intro *A Very Brutal Place* on Thursday 11, with Capaldi commenting on "an economic strategy gone wrong". 54" of the Doctor, Bill and Nardole together aboard the TARDIS formed a second preview on Friday 12.

▶ The preview version of *Oxygen* seen by reviewers differed slightly from the broadcast version with the Doctor's final line about being blind re-recorded in a softer manner.

Broadcast

► Scheduled for a 45-minute slot from 7.15pm on Saturday 13 May, *Oxygen* screened against *Take Me Out* on ITV and won its timeslot. “This’ll take your breath away...” said the continuity announcer before the ‘Pure Drama’ branding opened the episode. A closing voice-over during the end credits noted that the next episode would air at 7.25pm the following Saturday.

► A series of videos was released following transmission. Peter Caulfield explained *I Have Been Renamed Blue Peter* in a 1’34” interview on set while the 19’25” edition of *Doctor Who: The Fan Show* saw Jamie Mathieson, Mimi Ndiweni and Kieran Bew chatting to Christel Dee. Also on the Saturday evening, Janine Yaqoob of the *Daily Mirror* reported that the BBC had comedy writer/actor Phoebe Waller-Bridge lined up to succeed Peter Capaldi as the Doctor. “Beeb bosses



love Phoebe,” said ‘a source’. “They thought she did an amazing job with [her BBC Three sitcom] *Fleabag* and is certainly one of the rising stars in TV and film.” While Waller-Bridge said it would be cool to play a female Doctor, she had not seen much of the series.

Above:
“Wait. There’s no oxygen.”



► On Sunday 14 May, the 1’20” video of Kieran Bew discussing *Who Doesn’t Want to Be a Spaceman* during his wirework day was released. That evening, Pearl Mackie co-presented the Huw Wheldon Award for Specialist Factual Programme at the Virgin TV British Academy Television Awards at the Royal Festival Hall in London. In Australia, federal MP George Christensen joined Rove McManus, Tegan Higginbotham, Adam Richard, Steven ‘Bajo’ O’Donnell and actor/podcaster Petra Elliott in *Whovians*; in this show, a young viewer offered his

Left:
Spacesuit zombie Tasker advances.

Right:

"I can't move
my arms!"



theories on who was in the vault and Costa Georgiadis of *Gardening Australia* talked about how to grow Krynoids in his audition as the next Doctor. BBC America released a 1'06" *Doctor Who Closer Look* about the episode with comments about its production from Peter Capaldi and Pearl Mackie.

- ▶ Jamie Mathieson, Peter Capaldi and Steven Moffat commented on the shock ending of the episode with the blinded Doctor in a 2'05" video

released by the BBC on Tuesday 16 May. A signed repeat scheduled of *Oxygen* at 1.20am the following Saturday morning was rescheduled to 1.30am on BBC Two (due to *Later... with Jools Holland*) and drew an audience of around 220,000.

- ▶ 'A solidly constructed story' was the verdict of Graham Kibble-White in *Doctor Who Magazine* as he commented that *Oxygen* for him was 'a bit of a design classic'.

ORIGINAL TRANSMISSION

EPISODE	DATE	TIME	CHANNEL	DURATION	RATING (CHART POS)	APPRECIATION INDEX
Oxygen	Saturday 13 May 2017	7.15pm-8.00pm	BBC One	44'46"	5.27M (26th)	83

REPEAT TRANSMISSION

EPISODE	DATE	TIME	CHANNEL	DURATION	RATING (CHART POS)	APPRECIATION INDEX
Oxygen	Saturday 20 May 2017	1.30am-2.15am ¹	BBC Two	44'46"	0.22M (-)	-

¹ Signed repeat. Scheduled for 1.20am-2.05am

Merchandise

The DVD and Blu-ray set *Doctor Who: Series 10: Part 1* issued by BBC Worldwide on Monday 29 May 2017 featured *Oxygen* and also a 2'30" bonus item in the form of *Inside Look – Oxygen* which offered comments from Steven Moffat, Peter Capaldi and Pearl Mackie.

Oxygen was also included on *Doctor Who: The Complete Series 10* box set released on DVD and Blu-ray on Monday 13 November, along with a commentary by Jamie Mathieson, Matt Lucas and Pearl Mackie, the *Inside Look* featurette, and the aftershow edition of *Doctor Who: The Fan Show*. An Amazon-exclusive Blu-ray Steelbook edition of the box set was available, featuring artwork by Alice X Zhang.

Who Dares issued a calendar for 2018. This A4 wire-bound calendar featured 12 pieces of Stuart Manning's retro artwork.

The artwork for February was from *Oxygen*.

Titan's 'Partners in Time' collection of mini vinyl figures was issued in January 2018. It included a figure of Bill Potts in her spacesuit, as seen in *Oxygen*. Issue 118 of Eaglemoss' *Doctor Who Figurine Collection*, published in February 2018, came with a spacesuit zombie. ■



Left: Behind the scenes on the DVD extras.



Far left: Eaglemoss' figurine of a spacesuit zombie.

Below: Titan's mini vinyl figure of Bill Potts.



Cast and credits

CAST

Peter Capaldi.....The Doctor
Pearl Mackie.....Bill¹
 and
Matt Lucas.....Nardole
 with
Michelle Gomez.....Missy²
Kieran Bew.....Ivan
Justin Salinger.....Tasker
Peter Caulfield.....Dahh-Ren
Mimi Ndiweni.....Abby
Katie Brayben.....Ellie

¹ Credited in listings publications as Bill Potts

² Not in finished programme. Not credited

UNCREDITED

Belinda McGinley.....Stunt Female Corpse
Elliot Murray.....Stunt Male Corpse
Belinda McGinley.....Stunt Double for Ellie
Elliot Murray.....Stunt Double for Ivan
Lauren Pate.....Student (speaking)
Conor Clarke McGrath, Joel Mulzac, Charlie Morton, Robin Harper, Eric Aydin-Barberini, Jason Clarke, Liam Casey, Folasade Ariyibi, Nicola Brooks, Ryan Ball, Jessica Moses, Kate Wong, Rhys Mumford, Nikhil Raj, James Briggs, Joshua Masini, James Whale, Ollie Douglas, Melissa Azombo, Robert Penny, Thubelihle Moyo, Jessica Roberts, Ainsleigh Barber, Rhiannon Causey, Josh Hopkin,

Right:

Can the Doctor save the survivors of the Chasm Forge?



Rachel Evans, Bethany Glasspool-Page, Jennifer Ryder, Thomas Gilvear, Josh Knight, Bethan Lock, Becky Parsonson, Sophie Ball, Elliot Green, Ellen Thomas, Rowan Katy Quinton, Nathan Davies, Victoria George-Veale, Giulia Patricolo, Jade Robinson, Owen Milson, Samantha Longville, Sophia Rose Holmes, Tabitha Taya, Connor Jones, Antonia Forrest, Holly Wade, Jasmine Lenton, Jake Swetman, Lucinda Cook.....

Students

Nick Lambon, Emma Genders.....

Corpse Feet Doubles

Tim Reid, Barbara Fadden, Clem So, Mickey Lewis, Rebecca Foster, Francesca Cheek.....

Corpse Suits (Electrocuted)

Tim Stevens..... Suit

Gareth Weekley..... Double for the Doctor

Glyn Evans..... Hand Double for the Doctor

Jon Davey, Simon Carew, Patricia Dichler,

Natalie Cuzner, Chester Durrant, Anu

Ganapathy, Jacob Nwogu, Huy Truong,

Andrew Cross, Sunny Ghosh, Elizabeth Appiah...

Corpse Suits (Swollen)

Elliot Murray..... Shoulder Double for Nardole

Jacob Nwogu..... Hand Double for Ivan

CREDITS

Written by Jamie Mathieson

Produced by Nikki Wilson

Directed by Charles Palmer

Stunt Coordinator: Crispin Layfield,

Belinda McGinley

Stunt Performer: Elliot Philip Murray

Wires: Bob Schofield

Choreographer: Ailsa Berk [mis-spelt Ailsa Burke]

1st Assistant Director: Simon Morris

[uncredited: Fletcher Rodley; 2nd unit:

Christopher J Thomas]

2nd Assistant Director: James DeHaviland

[2nd unit: Delmi Thomas]

3rd Assistant Director: Christopher J

Thomas [uncredited: Rhun Ilewelyn;

crowd rep/2nd unit: Harry Bunch; 2nd unit:

Danielle Richards]



Above:

Bill wrestles with her smartsuit.

Assistant Directors: Rhun Ilewelyn,

Lauren Pate [uncredited: Gwilym Jenner,

Ella Morgan; 2nd unit: Kieran Hayhow]

Unit Drivers: Sean Evans, Kyle Davies

[uncredited: Paul Watkins, Jolyon Davey,

Paul Carmichael, Steve Darwent, Montil Jalil,

Beverley Spinola, Darren Davies, Owen Davies,

Graham Huxtable]

Location Manager: Nicky James

Unit Manager: Beccy Jones

Production Manager: Adam Knopf

Production Coordinator: Sandra Cosfeld

Assistant Production Coordinator: Nicola Chance

Production Assistants: Virginia Bonet, Jamie Shaw

Assistant Accountants: Justine Wooff,

Matthew Fisher

Art Department Accountant: Bethan Griffiths

Script Supervisor: Nicki Coles

[2nd unit: Heulwen Jones]

Script Executive: Lindsey Alford

Script Editor: Nick Lambon

Assistant Script Editor: Emma Genders

Camera Operator: Mark McQuoid

[2nd unit: Trevelyan Oliver]

Focus Pullers: Jonathan Vidgen, Elhein De Wet

[crowd rep/2nd unit: Elliot Hale; 2nd unit:

Paul Andrew]

Camera Assistants: Gethin Williams, Drew Marsden,

Dan Patounas [uncredited: Cai Thompson]

Grip: John Robinson [2nd unit: Gary Sheppeard]



Above:
Ivan and Tasker
save their
breath.

Assistant Grip: Sean Cronin
[uncredited: Allan Hughes; 2nd unit:
Sion Woodman]
Sound Maintenance Engineers: Tam Shoring,
Christopher Goding [2nd unit: Mark Elson,
Joe Malone]
Gaffer: Mark Hutchings
Best Boy: Andy Gardiner
Electricians: Gawain Nash, Gareth Sheldon,
Bob Milton, Sion Davies, Andrew Williams
Supervising Art Director: Paul Spriggs
Art Director: Tim Overson
[2nd unit: Dafydd Shurmer]
Standby Art Director: Nick Murray
[2nd unit: Anwen Haf]
Set Decorator: Adrian Anscombe
Production Buyer: Jen Saguaro
Prop Buyers: Jo Pearce, Charlotte Lailey de Ville
Draughtpersons: Matt Sanders, Kartik Nagar
Storyboard Artist: Mike Collins
Prop Master: Paul Smith
Props Chargehand: Kyle Belmont
Standby Props: Matt Ireland, Jonathan Barclay

Prop Hands: Scott Howe, Nigel Magni, Matt Watts
Storeman: Jamie Southcott
Concept Artist: Darren Fereday
Graphic Artists: Matt Clark, Lawrence Hearn
Graphics Assistant: Jack Bowes
Standby Carpenter: Paul Jones
[2nd unit: Phil Pritchard]
Rigging: Shadow Scaffolding
Standby Rigger: Nigel Owen
[uncredited: Thomas Williams; 2nd unit:
Martyn Morgan]
Practical Electricians: Callum Alexander,
Austin Curtis
Props Driver: Gareth Fox
Construction Manager: Terry Horle
Construction Chargehand: Dean Tucker
Chargehand Carpenter: John Sinnott
Carpenters: Tim Burke, Keith Richards, Matt Ferry,
Campbell Frazer, Chris Daniels, Joe Painter,
George Rees, Alan Jones, Dan Berrow,
Mike Venables, Tom Berrow
Construction Driver: Jonathan Tylke
Construction Labourer: Jason Tylke

Head Scenic Artist: Clive Clarke
 Painters: Steve Nelms, John Nelms, Paul Murray,
 Debby McShane
 Assistant Costume Designer: Zoe Howerska
 Costume Supervisor: Kat Willis
 Costume Assistants: Rebecca Cunningham,
 Leila Headon, Jenny Tindle [uncredited: Ali Kedge,
 Gayle Woodsend, Sian Bagnall, Jill Blundell]
 Make-up Supervisor: James Spinks
 Make-up Artists: Megan Bowes, Lolly Goodship
 [uncredited: Heulwen Evans, Cathy Davies]
 Unit Medic: Glyn Evans
 Casting Associate: Ri McDaid-Wren
 Casting Assistant: Louis Constantine
 Business Affairs Executive: Carol Griggs
 Assistant Editors: Becky Trotman, David Davies
 VFX Editor: Dan Rawlings
 Post Production Coordinator: Hannah Jones
 Dubbing Mixers: Mark Ferda, Darran Clement
 ADR Editor: Matthew Cox
 Dialogue Editor: Helen Dickson
 Effects Editor: Harry Barnes
 Foley Editor: Simon Clement
 Foley Artist: Meltem Baytok
 Titles: BBC Wales Graphics
 Title Concept: Billy Hanshaw
 Online Editors: Geraint Pari Huws, Mark Hardyman
 Assistant Online Editor: Christine Kelly



Above:
 Ivan on the
 exterior of the
 Chasm Forge.

Colourist: Gareth Spensley
 Music Conducted & Orchestrated By Alastair King
 Music Mixed By Jake Jackson
 Music Recorded By Gerry O'Riordan
 Music Score Assistant: Jack Sugden
 Original Theme Music: Ron Grainer
 With thanks to the National Orchestra of Wales
 Casting Director: Andy Pryor CDG
 Head of Production: Gordon Ronald
 Production Executive: Tracie Simpson
 Post Production Supervisor: Samantha Price
 Production Accountant: Simon Wheeler
 Sound Recordist: Deian Liŷr Humphreys
 [2nd unit: Richie Brooks]
 Costume Designer: Hayley Nebauer
 Make-up Designer: Barbara Southcott
 Music: Murray Gold
 Visual Effects: Milk, BBC Wales VFX
 Special Effects: Real SFX
 Special Creature Effects & Prosthetics:
 Millennium FX
 Editor: Will Oswald
 Production Designer: Michael Pickwood
 Director of Photography: Mark Waters
 [2nd unit: Trevelyan Oliver]
 Line Producer: Steffan Morris
 Executive Producers: Steven Moffat, Brian Minchin
 BBC Studios
 Cymru Wales
 bbc.co.uk/doctorwho
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 albert+ sustainable production

Left:
 Abby in her
 Ganymede
 smartsuit.



Profile

CHARLES PALMER

Director

Charles E Palmer was born spring 1965 in Amersham, Buckinghamshire, the son of quintessential British character actor Geoffrey Palmer. Famous for comedy series including *The Fall and Rise of Reginald Perrin* (1976-9) and *Butterflies* (1978-83), Palmer Senior made *Doctor Who* appearances as Masters in *Doctor Who and the Silurians* [1970 – see Volume 15], the Administrator in *The Mutants* [1972 – see Volume 18] and, much later, as Captain Hardaker in *Voyage of the Damned* [2007 – see Volume 57].

Geoffrey Palmer married Sarah ‘Sally’ Green in Wilmslow, Cheshire in March 1963. Charles was their first child, with a younger sister Harriet born late 1966.

Charles’ first TV exposure came when his photograph appeared in the title sequence of his father’s sitcom *As Time Goes By*

Below:

Charles Palmer directed 2007’s *Smith and Jones*, the episode which introduced the Judoon and Martha Jones.



(1992-2005), intended as a photo of his father’s character as a young army officer.

Around the same time his own established television career behind the camera began in his mid-20s, working as a clapper loader on both Channel Four’s lavish drama *The Camomile Lawn* (1992) and on an episode of *Spender* (1993).

Palmer moved into the camera department, initially as a focus puller on TV dramas *A Village Affair* (1995), *Sharpe* (1995), *A Dance to the Music of Time* (1997) and *Shooting the Past* (1999). He performed the same duties on feature film *Bent* (1997).

He stepped up to become a camera operator on pop videos and documentaries, then eventually TV movies *Back Home* (2001) and Paul McGann thriller *The Biographer* (2002), and on British cinema movies *Kiss Kiss (Bang Bang)* (2001) and *Bend it Like Beckham* (2002).

Meantime, Palmer began directing with a star-studded short film *The Magic of Vincent* (2000), about Vincent van

Gogh and a modern-day equivalent. His first full TV directing credit came with *Linda Green* (2001), made by BBC/Red Productions, progressing to further credits on several episodes of camp Granada soap *Night & Day* (2001-3), Channel 4's *The Ghost Squad* (2005), ITV medical drama *Vital Signs* (2006), which he also created, and BBC costume drama *Lark Rise to Candleford* (2008).

He made a name for himself as director of a number of Agatha Christie adaptations for ITV. For *Marple* he helmed *The Murder at the Vicarage* (2004), *A Pocket Full of Rye* (2008) and *A Caribbean Mystery* (2013), while for *Poirot* he directed *The Clocks* (2009), which guest-starred his father, and *Hallowe'en Party* (2010).

His first *Doctor Who* credits came working on two production blocks for the 2007 series, directing *Smith and Jones* and *The Shakespeare Code* [both 2007 – see Volume 54] and *Human Nature/The Family of Blood* [2007 – see Volume 56]. Although reticent about being interviewed by *Doctor Who Magazine* at the time, he provided a DVD commentary to *Human Nature* alongside writer Paul Cornell and composer Murray Gold.

Palmer's return to the show came a decade later on this block of the 2017 series, comprising *Oxygen* and *The Eaters of Light* [2017 – see Volume 88].

With his Agatha Christie experience, he has tended to work in crime and mystery dramas, with instalments of *Death in Paradise* (2011), *Lewis* (2011), *By Any Means* (2013), *Midsomer Murders* (2015) and a two-part *Silent Witness* (2018).

Credits outside of the crime genre include *Doc Martin* (2015) and four second-series episodes of *Poldark* (2016). He has often been credited as Charlie Palmer.

On 13 February 2001 he married actress Claire Skinner at Westminster Register



Office, with a church blessing in Suffolk two days later. *Doctor Who* fans will recall Skinner guest-starring as war widow Madge Arwell in *The Doctor, The Widow and the Wardrobe* [2011 – see Volume 70]. They had first met working on *A Dance to the Music of Time* in 1997 and he later directed her in ITV drama *Life Begins* (2004/5). They lived in Hampstead with their sons Billy, born 1999, and Tom, born 2002. The couple separated in late 2015.

Interviewed by *Doctor Who Magazine*'s Mark Wright in 2017 for *The Essential Doctor Who: Adventures in Space*, Palmer summed up the variety of his work as a director, working on everything from the space scenes of *Oxygen* to the sunny Cornwall locations of costume drama *Poldark*: 'It's the same whatever you do. The challenges are different, but actors on horseback can be just as troublesome to film as actors hanging in space, for different reasons. That's what's nice about it. They're different but it's the same job; it's about getting what's on the page up on screen and trying to make it truthful, good and believable.' ■

Above: 2007's *Human Nature/The Family of Blood* was directed by Palmer.




EXTREMIS

▶ STORY 270

The Doctor is blind, but hides the truth from Bill. A copy of an ancient book, the *Veritas*, is about to go viral, but everyone who reads it kills themselves. The Pope requests that the Doctor discovers the book's secret by reading it himself... but he cannot see.



A promotional image for the Doctor Who story 'Extremis'. It features three characters walking towards the camera in a grand, dimly lit library with high ceilings and bookshelves. On the left is a bald man with glasses wearing a brown duffle coat and red trousers. In the center is the Doctor, played by Peter Dinklage, with wild grey hair, wearing a dark coat over a black shirt with white dots. On the right is a woman with a large afro hairstyle, wearing a rainbow-striped top and a light blue jacket. Papers are floating in the air around them. At the bottom, a quote is displayed on a white banner.

'HOW CAN WE BE SURE THAT WE
AREN'T SIMULATIONS OURSELVES —
LIVING IN A SIMULATION
CREATED BY OTHERS?'

Introduction

Doctor Who had explored the idea that the reality portrayed in its stories could be some kind of artifice before.

The Mind Robber [1968 – see Volume 13] saw the TARDIS arrive in the Land of Fiction – with the Doctor and his companions in danger of becoming fictional characters themselves. *The Deadly Assassin* [1976 – see Volume 26] introduced the Matrix – a virtual realm that the Doctor was inserted into. In *The Trial of a Time Lord* [1986 – see Volume 42], the Matrix was used to create a copy of the ‘real world’ in an attempt to dupe the Doctor.

Extremis grappled with the idea that, if at some point in the future humanity could create a virtual world inside a computer, complete with fabricated yet conscious individuals, how can we be sure that *we* aren’t simulations ourselves – living in such a simulation created by others?

This is, in a sense, not much more than a technological analogue of well-established creation myths. It’s fitting therefore that in *Extremis* the Pope was drawn into the plot, and that the architects behind this extraordinary re-enactment of human history styled themselves as Monks.

The Monks have conducted these simulations in order to gather intelligence for their invasion of Earth. It may seem a lot of effort to go to but, as we discovered in the second and third instalments of this trilogy – *The Pyramid at the End of the World* [see page 102] and *The Lie of the Land* [2017 – see Volume 88] – this isn’t the most peculiar thing about this mysterious alien race.



Extremis also resolved the mystery about the Vault the Doctor was guarding at St Luke’s University – first seen in *The Pilot* [2017 – see Volume 85]. Although heavily hinted at in *Knock Knock* [2017 – see Volume 86], it’s here that we discovered for certain that it’s Missy that the Doctor has under lock and key. The Doctor being present at her execution has echoes of the start of the *Doctor Who* TV Movie [1996 – see Volume 47] and the Doctor’s indulgent treatment of his arch-enemy, once she was locked up, harks back to when a previous incarnation of this character was incarcerated in *The Sea Devils* [1972 – see Volume 18]. On both those previous occasions, the Master had no trouble escaping, which led us to wonder whether Missy’s contrition was possibly genuine. This was a conundrum that would be resolved in the 2017 series finale, *The Doctor Falls* [see Volume 89]. ■

Above:

The Second Doctor engages the fictional Gulliver in conversation in *The Mind Robber*.

STORY

A long time ago, the Doctor was summoned to perform an execution at a bleak lakeside on an alien world, officiated by a man called Rafando. The condemned prisoner was Missy! [1]

Missy is now being held prisoner in the vault. The Doctor sits outside – and receives an alert through his sonic sunglasses. New email: Title EXTREMIS. Downloading.

The Doctor is visited by a priest, Cardinal Angelo. He has come from the Vatican because the Pope requests a personal audience. [2] Angelo explains that there is an ancient text in the Haereticum, the Vatican's library of forbidden texts, called the *Veritas*. It has just been translated – but everyone who worked on it has killed themselves, apart from one translator who has gone missing.

When Missy faced execution, the Doctor was visited by a priest, who told

him that true goodness is only good when it is without hope, without witness and without reward, before revealing himself to be Nardole. [3]

The TARDIS lands in the Vatican and Cardinal Angelo conducts the Doctor, Nardole and Bill into the Haereticum. The Doctor, Nardole and Bill come to the cage where the *Veritas* is kept, and find the missing translator. He says, "I sent it," and runs off, leaving behind a laptop. [4]

Meanwhile, Angelo is examining the wall when a claw-like hand bursts through and grabs him.

Nardole examines the laptop and discovers that the translator sent CERN a copy of the *Veritas* translation. CERN has replied, saying, "Pray for us." [5]

Nardole and Bill look for the translator and find a portal, full of white light.

On the bleak lakeside, Missy told the Doctor she was his friend. Speaking without hope, without witness, without reward. And then the Doctor pulled the lever to execute her. [6]





Nardole and Bill enter the portal and find themselves in a circular space ringed with portals. One leads to a cupboard in the Pentagon. [7] Another leads to CERN.

The Doctor borrows some regeneration energy from his future to restore his eyesight for a few minutes. A robed figure – who the Doctor mistakes for the Cardinal – joins him. The Doctor regains his sight and realises the Cardinal is, in fact, a Monk with the face of a decaying corpse! [8] The Doctor flees, taking the laptop with him.

At CERN a scientist, Nicolas, takes Nardole and Bill to a cafeteria. They are horrified to discover that the scientists have rigged it to explode. Nicolas explains that they are not in the real world. [9]

The Doctor attempts to read the translation on the laptop but is caught by the Monks. Then a glowing portal appears before him...

Nardole and Bill return to the circular white space. Nardole realises

the portals are projections of simulated worlds. He tries moving outside the light of a projector – and dissolves into nothing. [10]

Bill follows a blood trail through a portal and finds herself in the Oval Office of the White House. The Doctor is there. He's read the *Veritas* and explains that they are inside a simulation created by the Monks to assess the people of Earth prior to invasion. [11] Bill dissolves into pixels, and the Doctor is left facing one of the Monks. He tells it that it made its simulation far too good. Because even though he is not real, he can send an email of his memory print... to his real self!

... which was the message the Doctor received, sitting outside the vault.

The Doctor didn't actually execute Missy. He fiddled with the execution device so it would just render her unconscious rather than kill her. But he still intends to fulfil his oath, to guard her for a thousand years. [12]

'THE MIDDLE EPISODES OF THE SERIES COULD BE TIED TOGETHER, WITH THE DOCTOR'S BLINDNESS FEEDING INTO A TRILOGY WHICH WOULD PIT HIM AGAINST THE BIZARRE MONKS.'

Pre-production

“Watch out for the best interrupted date ever. The worst possible thing to happen on a date,” lead writer and executive producer Steven Moffat told the audience of the BFI & *Radio Times* Festival when discussing the new series of *Doctor Who* at the BFI Southbank on Sunday 9 April 2017. Viewers got to experience this on Saturday 20 May when Bill’s intimate evening with Penny received an unexpected visit from the Pope.

“Once a year – sometimes more than once – I try to push things a little bit,” Moffat told Patrick Mulkern of *Radio Times*. Moffat was aware that after his opening episode, the 2017 series of *Doctor Who* was offering some traditional and comparatively simple narratives to firmly establish Bill as the Doctor’s new companion via a series of challenging situations. For these, the Doctor was more of a gentle, kind and wise figure. However, by mid-series, Moffat wanted to experiment with a darker and stranger



Connections: Past Pope

► The Doctor knew Pope Benedict IX in 1045; born Theophylactus of Tusculum, Benedict was Pope on three occasions between 1032 and 1048. He was rumoured to be a homosexual and reportedly led a very dissolute, scandalous life.



story – something out of the ordinary for *Doctor Who*.

“I was looking for something big in the middle of the series,” explained Steven Moffat to *Doctor Who Magazine* regarding the structure of the show’s 2017 run. For a while, he considered the extreme move of blowing up the Earth... but then realised that this would rob him of a setting for many stories that the series might want to tell. By

mid-2016, he could see elements which could weave together from story ideas which he was discussing with other writers. Toby Whithouse wanted to develop a story about an Earth under a totalitarian regime similar to that of George Orwell’s 1949 novel *Nineteen Eighty-Four*, while Peter Harness had in mind a tale about ‘kung fu monks’ planning to wipe out all life on Earth. In late July, Jamie Mathieson delivered a draft of the fifth episode of the series, *Oxygen* [2017 – see page 6], which concluded with the Doctor having lost his sight following a brave gesture to save Bill’s life. Moffat now considered how the middle episodes of the series could be tied together, with the Doctor’s blindness feeding into a trilogy which would pit him against the bizarre Monks. The loss of the Doctor’s sight would be a shock for the viewers who would expect it to be cured by the end of *Oxygen* rather than continued across several weeks. Moffat felt that showing the Doctor coping with a disability was new territory for the series.

Steven Moffat had been intrigued to read about the metaphysical idea that real life was actually some sort of very complex computer simulation; appearing in antiquity as far back as the Indian

philosophy of Maya, the idea had become popularised since 2003 after philosopher Nick Bostrom proposed his “simulation argument” in *Philosophical Quarterly*. As a player of computer games, Moffat was aware that the programming of gaming characters was becoming increasingly sophisticated, and that in the next century such simulated figures might become indistinguishable from reality. He felt it would be a fascinating area to explore in an adventure where the Doctor, Bill and Nardole discovered that they were not real people. However, the simulated Doctor would be smart enough to realise that he was not real, and inform the real Doctor of the threat which the simulation’s purpose posed.

With Peter Harness pencilled in as writer of the seventh episode of the series and Toby Whithouse for the eighth, Steven Moffat would set the trilogy in motion, introducing the Monks in the sixth episode, which he saw as a thriller in the style of *The Da Vinci Code*, Dan Brown’s best-selling novel published in March 2003. Brown’s novel presented a

Right:

A Monk in the Haereticum.





mystery concerning a murder in a museum connected to a cryptic message about Jesus and the Roman Catholic Church, and had spawned a successful 2006 thriller movie. Moffat was also very impressed with Umberto Eco's 1980 novel *The Name of the Rose* (*Il nome della rosa*), a murder mystery set in an Italian monastery in 1327 which included biblical elements and offered a backdrop which Moffat knew that *Doctor Who* had seldom employed.

The Pope

While not religious himself, Steven Moffat did not want to cause offence to viewers who held such beliefs. The use of the Pope – the leader of the Roman Catholic Church, a position held since March 2013 by Pope Francis – in a BBC drama had to be cleared with the BBC in advance, as this was a more sensitive title than the British Prime Minister or the United States President, various versions of which had featured in *Doctor Who* in recent years. While the Doctor could be irreverent about world leaders, he would treat the Pope with the utmost seriousness. With clearance for the

papal appearance, Moffat set to work on his story during August. He chose the title *Extremis* from the Latin phrase 'in extremis' meaning 'at the point of death', feeling that this underlined that the Doctor – including a simulated Doctor – was still heroic, even when faced with certain death.

There was another element which Moffat wanted to include in his script to seed the series climax. "It's an absolute classic mystery, isn't it? It's the locked door," he told *Doctor Who Magazine* of the mysterious vault which the Doctor had been guarding with Nardole at St Luke's University since the first episode of the series, *A Star in Her Eye* (latterly *The Pilot* [2017 – see Volume 85]). The writer always intended that Missy, the Doctor's Time Lord arch enemy and sometime best friend, should be imprisoned in the vault – but did not feel that the surprise would extend across the whole series. As such, by revealing at this juncture via flashbacks that Missy appeared to be the vault's inhabitant, he aimed to create a new mystery about the changing relationship between the two Time Lords as the former Master apparently wanted to change her nature. Another shock for the viewers which Moffat wanted to offer was the idea of the Doctor becoming the appointed executioner of his old rival.

Toby Whithouse's untitled first draft of the eighth episode of the series was available by mid-September and schedule for Block 6. Block 5 was to be produced by Peter Bennett, and directed by Australian writer/director Daniel Nettheim who had handled *The Zygon Invasion/The Zygon Inversion* [2015 – see Volume 82] in

Left:
The Doctor
takes office.

Connections: Biology

➤ Rafando refers to Time Lords having two hearts – as established in *Spearhead from Space* [1970 – see Volume 15] – and also indicates that they have three brain stems (Missy had commented in *The Magician's Apprentice/The Witch's Familiar* [2015 – see Volume 80] that UNIT needed two snipers to fire at her brain stems).



May/June 2015. Since then, he had been back in Australia working on series such as *Jack Irish*, *Hunters* and *Hyde & Seek*, episodes of *Ripper Street* in Dublin in early 2016, and then directing instalments of *Broadchurch* for ITV back in the UK (on which he was to wrap in early October). The two episodes forming Block 5 would be *Extremis* and Peter Harness' *First Contact* (number 122), latterly *The Pyramid at the End of the World* [2017 – see page 102].

"Weirdly, this is the sort of crunch week where I get to find out exactly what I'm going to be doing next," Michelle Gomez told the Australian website *The Music* on Friday 14 October 2016, "I can officially say that I will be starting back on *Doctor Who* soon, so that's one thing." Since her last work on *Doctor Who* in early 2015, Gomez had played The Lady in the American series *Gotham* and featured as Eliette Malet in the on-demand series *The Collection* which had been made in Europe in early 2016.

Extremis Draft One was issued in

instalments with Chunk One dated Monday 17 October. This did not open with a reprise of previous events, nor a caption indicating the time period. Rafando's opening narration indicated: "On this world we have elevated the administering of death to the highest levels of precision." On 'a bleak, craggy planet. Cratered, like the Moon,' the armed guards were 'humanoid, but by their clothes, not of Earth. Their garb is ceremonial, old world, but they are cradling large energy weapons. Hard to say if they're the Doctor's personal guard, or



his captors.' The Doctor's boat arrived on a sandy beach. Rafando was 'a weasel of a man, in ceremonial garb' and with him was 'a thickset, muscular man, wearing a hood. He carries a massive, weighty device [which] looks like a high tech axe.' Missy looked 'imperious and somehow impish at the same time. By her swagger, she's having the time of her life.' None of Missy's dialogue about Darillium was present, and instead she and the Doctor simply confirmed that they had nothing to say to each other. Close to the execution platform was 'a large cube [which is] ornate and complex – and we might recognise the doors as the doors in the Doctor's vault!' The Hooded Man handed the execution device to the Doctor and it gave a whine of building energy in his hands as he raised it over Missy's head. The scene then cut to the vault chamber on 'the same day as [the Doctor] returned in *Oxygen*, but now it's night time'. In the chamber, the Doctor was approached by 'a row of robed and

Right:
Missy is led to
her execution.

Connections: Retirement

▶ Missy refers to the Doctor supposedly retiring to "domestic bliss" on Darillium, as shown by the Doctor's final night with his wife River Song in *The Husbands of River Song* [2015 – see Volume 84]. This was the rumour she had heard from the Daleks, whom she had encountered in *The Magician's Apprentice*/

The Witch's Familiar [2015 – see Volume 80].





silent Catholic priests', with Father Angelo described as having a 'face pock-marked and cadaverous' with the note 'by the opulence of his robes, he is clearly very senior indeed'.

Flashback sequence

After the opening titles, security men stood alongside a row of limousines parked at the university while the vault conversation continued. The Doctor's sonic shades did not relay information to him about his visitors, with Angelo explaining that neither church nor governments were aware of this meeting. When the Doctor was initially rude to the visitors he was approached by 'a frail old man, supported by two helpers. This is clearly the Pope himself.' The sheet of paper which Nardole read to the Doctor said: '*La Verità*.' The Doctor remarked that he needed to see the Vatican libraries. Turning down the offer of the Pope's jet, he gave Nardole the TARDIS key, telling

Angelo: "You know that thing about moving in mysterious ways..." This draft ended with the Pope and the Doctor walking in on Bill's date with Penny.

Moffat opted to have the Pope speak only in Italian, with Angelo translating into English. Although on previous occasions, the TARDIS had allowed the Doctor to understand all languages, on this occasion the writer felt that the scenes worked better this way. At one point the Doctor declined the translations, but was urged to play along by Nardole for the sake of politeness.

Chunk Two was dated Sunday 23 October and opened with the concluding sequence of *Oxygen*, indicating that something was trapped inside the vault. The flashback sequence now took place 'a thousand years ago' and Missy discussed Darillium. After the flashback, the Doctor slammed his hand on the lecture theatre lectern, considering his memories. His sonic shades now offered 'Doctor vision:

Pre-production

Connections: Bulletproof Pope

▶ The Doctor refers to the Popemobile, the vehicles designed for the Pope's public appearances to give him protection while making him visible to crowds. The name was first used in the late 1970s during the pontificate of John Paul II.



Below:
Nardole and Bill see the light.



A Monk, a character from Doctor Who, is shown in profile, facing right. He is wearing a long, flowing red robe with intricate black patterns. His head is covered in a matching red hood. He is standing in a room with a large, ornate gold-framed painting on the wall behind him. Below the painting is a dark wooden chest of drawers with brass handles. To the right, a portion of a wooden chair with a green and yellow patterned seat is visible. The Monk's hands are clasped in front of him.

'WHEN THE MONK SPOKE, IT DID SO IN
A "PAPERY, HISSING WHISPER".'





Above:
The Doctor
'reads' the
Veritas.

a heads-up display, over blackness – a wireframe schematic of the lecture theatre. Moving through the blackness, floating words in compact little paragraphs, each reading: HEARTBEAT, TEMPERATURE, WEIGHT, HEIGHT, GENDER, AGE – with the appropriate, varying numbers attached to each. Each of the paragraphs is tracking the progress of the monitored individual into the lecture theatre.' Father Angelo's approach in the theatre now concluded the pre-credits. In the Doctor's office, *La Verità* had become *Veritas*. When Nardole compared the *Veritas* to *The Da Vinci Code*, the Doctor commented: "Oh, dreadful book, but I wouldn't go beyond self-harm."

In the new material, during the flashback

where River died, having been deposited by the Doctor after the events of *Silence in the Library/Forest of the Dead* [2008 – see Volume 59].

In the TARDIS, the Doctor dropped his sonic while working on his device; Bill retrieved it for him, with the reading of her confirming her 'AGE' as '25'. He told her that he was okay but she was amazed that he was letting Nardole pilot the TARDIS with Nardole recalling that "bears" were the worst thing that could happen from his memory. Bill insisted that the Doctor "looked her in eye" to assure her there was nothing wrong. The TARDIS landed in the Sistine Chapel where the travellers studied the work of Michelangelo. Angelo led the group into the library catacombs and the Library Heretical where Bill reacted to the Doctor not seeing the light ahead of them. The light flooded into the area through what seemed to be 'an opened doorway' with a 'cowled figure' before it. Suddenly, they glimpsed a fleeing priest who had run from the iron cage. Angelo accompanied the Doctor, Bill and Nardole to the cage containing the book and laptop; the Doctor sent Angelo and Bill after the priest

Connections: Moving on

► Penny believes that Bill has moved out from Moira's flat, but Bill indicates that things hadn't worked out...

as seen in *Knock Knock* [2017 – see Volume 86].



while Nardole read him the email from CERN... as the draft ended. The inclusion of CERN was partly inspired by the fact that Steven Moffat's teenage son Joshua had served an internship at the Geneva establishment over the summer as a precursor to studying physics at university. The family had a guided tour of CERN and Moffat was delighted to discover that some of the staff were *Doctor Who* devotees.

Library Heretical

Chunk Three was dated Friday 28 October. Before leaving the TARDIS, Nardole pick-pocketed the Doctor's device, knowing that it could only restore his eyesight for around five minutes at a terrible price. When the Doctor reasoned that, having read the *Veritas*, he would probably die anyway, Nardole acquiesced and returned the device to him. Angelo now led the Doctor's party from the Sistine Chapel to the Library Heretical where they saw 'a thin, emaciated figure' in the light doorway. Angelo remained to examine the wall while the Doctor's party went to the cage where Bill commented

of Nardole's continual description: "We're not on the radio." "It's like when you can't turn off the DVD commentary," the Doctor later observed. Angelo was grabbed by a 'bony, desiccated, alien fingernail like claw' while Bill remained with Nardole to look at the emails.

In the new material, the Doctor sent Bill and Nardole to find the fleeing figure.

When Nardole sternly told Bill to follow his orders, the stage directions noted: 'And it's like a switch has been thrown. The gentle smile disappears, not a trace of the amiable duffer left – he's hard, fast and precise.' The pair found Piero ('a young priest') while the Doctor read the book; levelling the gun at them, Piero could not understand why his pursuers were not out of their minds. While the Doctor read the book, his friends confronted Piero with his laptop, asking why he sent the emails. "Your life is not your own," Piero told them. "It has never been your own." He dashed off, and they heard the priest shoot himself close to where the doorway of light had been. As the Doctor partly regained his vision, the script indicated 'from now on, the space in which he moves, and sits, and stands is a smeary, blurred underwater world of the barely discernible. (This will remain as the grammar for the Doctor's limited vision – a clearly defined Doctor in a blurry, half seen world.)' He was confronted by 'the terrible desiccated corpse face' of the Monk. The Doctor then saw 'skeletal, withered, claw-like' hands and looked into 'the corpse/skull face of the Monk' as the cage was 'surrounded by the corpse-like forms of the Monks'. This was where the draft ended.

Connections: Mad man

▶ In her diary, River Song refers to the Doctor as a "mad man in a box", echoing the description of him by her mother, Amy Pond, of a "mad man with a box", in *The Eleventh Hour* [2010 – see Volume 63] and adopted by the Doctor in *The Doctor's Wife* [2011 – see Volume 67].



Left:
"This isn't
the world!"



Connections: Blue book

▶ Nardole carries River Song's journal, as given to her by the Doctor in *Let's Kill Hitler* [2011 – see Volume 68] and carried by her when she arrived for her final encounter with him in *Silence in the Library/Forest of the Dead* [2008 – see Volume 59].



Moffat very much enjoyed writing the character of Nardole in the new script. Now that Matt Lucas who played Nardole had committed to a greater involvement in the series, there was an opportunity to develop the role, showing that behind the bumbling facade was a smarter, harder character. The writer had now reviewed Nardole's introduction in *The Husbands of River Song* [2015 – see

Volume 84] and realised that he was actually the “ultimate survivor”, adopting the persona of a “big kid” so as not to pose a threat to those around him.

The Sistine Chapel

The complete Draft One was circulated on Wednesday 2 November and saw various changes to the previous material. In the flashback, the Doctor's boat now arrived at the small island and ‘a circular platform floating in the water’. The pre-credits now had the Doctor receiving the ‘EXTREMIS’ email on his sonic shades outside the lecture theatre before the visitors arrived. Only the Pope now gatecrashed Bill's date and on arriving in the Sistine Chapel, Bill commented of Michelangelo's work: “See that angel? I totally would, and I'm only into women.” Angelo now led the Doctor's party to the Haereticum, adjacent to ‘a full length portrait of a rather sultry woman in white robes’. In the flashback, Nardole said that he had followed the Doctor from Darillium. In the library, the strange light came from a ‘large oval hole in the wall (very like the oval portals in the [2007 video] game *Portal*)’. The Doctor, Bill and

Nardole now found Piero: ‘a thin, pale, mad-eyed face with wild hair... dressed in priest's robes, which are dishevelled and grubby – like he's been down here for a while. He speaks in a fearful whisper.’ Piero was heard shooting himself, but the Doctor sent his friends after him anyway. The flashback to Missy's execution and the arrival of Bill and Nardole at the Pentagon to face a security man were added before the Monk's attack on the Doctor.

In the new material, Bill and Nardole found themselves in a ‘vast, circular chamber – so blazingly white you can't really make out details. Around the walls are a ring of oval portals – they seem to be projected by a ring of projector-like devices standing in a ring in the centre, one per portal.’ At CERN, Nicolas was a ‘clearly drunk man... A scientist clutching a wine bottle.’ When Nardole passed outside the projected area in the strange room, he ‘pixelates, becomes a wire frame version

Right:
Rafando
at Missy's
execution



of himself'. Of the US president slumped dead in the Oval Office, the script noted that since the presidential elections were to be held on Tuesday 8 November: 'Whether this figure is male or female TBA.' The Doctor explained to Bill that they were both simulations, but that he could email his memory print to the real Doctor. Bill was present with the Doctor as the Monks entered the Oval Office and he sent the email... with the download completed in the lecture theatre which Nardole was entering. The Doctor asked Nardole, "Is there a Pope in the house?" He then told Nardole to phone Bill and check she was all right, knowing she had a date. "Would you like some Jammie Dodgers?" Nardole asked the Doctor, in reference to the biscuits which the Doctor had enjoyed in his previous incarnation in episodes such as *Victory of the Daleks* [2010 – see Volume 63] and *The Bells of Saint John* [2013 – see Volume 72]. The Doctor realised that the

creatures could know nothing about Missy because she had been shielded inside the quantum fold chamber... and this led into the final flashback of Missy's false execution.

Draft Two of *Extremis* was dated Saturday 12 November and had the Doctor receiving the email while in the vault chamber; he 'undoes the top button of his shirt collar (as at the end of Christmas) – and as he does so he hears a ding! Like the sound of an email arriving.' After the opening titles, cars were now shown arriving at the university observed by Nardole, and the visitors approached the Doctor in the lecture theatre. Father Angelo became Cardinal Angelo and the TARDIS no longer travelled to the Sistine Chapel, but arrived in the Under Chapel, with Nardole's arrival in the flashback moved earlier in the script. Comments about *The Da Vinci Code* were dropped, and in the flashback Missy declared herself to be the Doctor's friend. The Doctor warned the Monk of its mistakes at length while in the cage; when the Monk spoke, it did so in a 'papery, hissing whisper. No movement of the lips – the voice seems to come from all around.' In the Oval Office, the doubt over the President's gender had been removed since Donald Trump had been voted into office days earlier. The Doctor now asked Bill about her mum (a vital plot element for *The Lie of the Land* [2017 – see Volume 88]), and she disintegrated, with the Doctor then speaking to the Monk before emailing the real Doctor. The Doctor received the email in the vault chamber and telephoned Bill about Penny; he no longer discussed Missy with

Connections: Hogwarts

► On seeing the vast interior space of the Haereticum with its many walkways and staircases, Bill exclaims "Harry Potter" in reference to the similarly strange interior of Hogwarts School in the popular novel range by J.K. Rowling and the subsequent movies.



Nardole. In the final flashback, when the Doctor told Rafando to check his Fatality Index, he added threateningly: “And that’s me being pacifist. So I really hope you’re not going to make me cross.” “Have a nice day!” replied Rafando before he fled.

Camera tests with Gareth Weekley standing in for Peter Capaldi as the Doctor were conducted for Block 5 on Wednesday 16 November during work on *The Eaters of Light* [2017 – see Volume 88] for Block 4 and pick-ups on the Christmas Special (latterly *The Return of Doctor Mysterio* [2016

– see Volume 85]). In the readthrough draft of *Extremis* – dated Thursday 17 November – several of the Pope’s speeches now carried an Italian translation (eg “La vostra saggezza è stata lodata per molti più secoli di quanto sembrasse possibile”), although there was no dialogue for when he burst in on Bill and Penny because this had not been translated into English by Angelo.

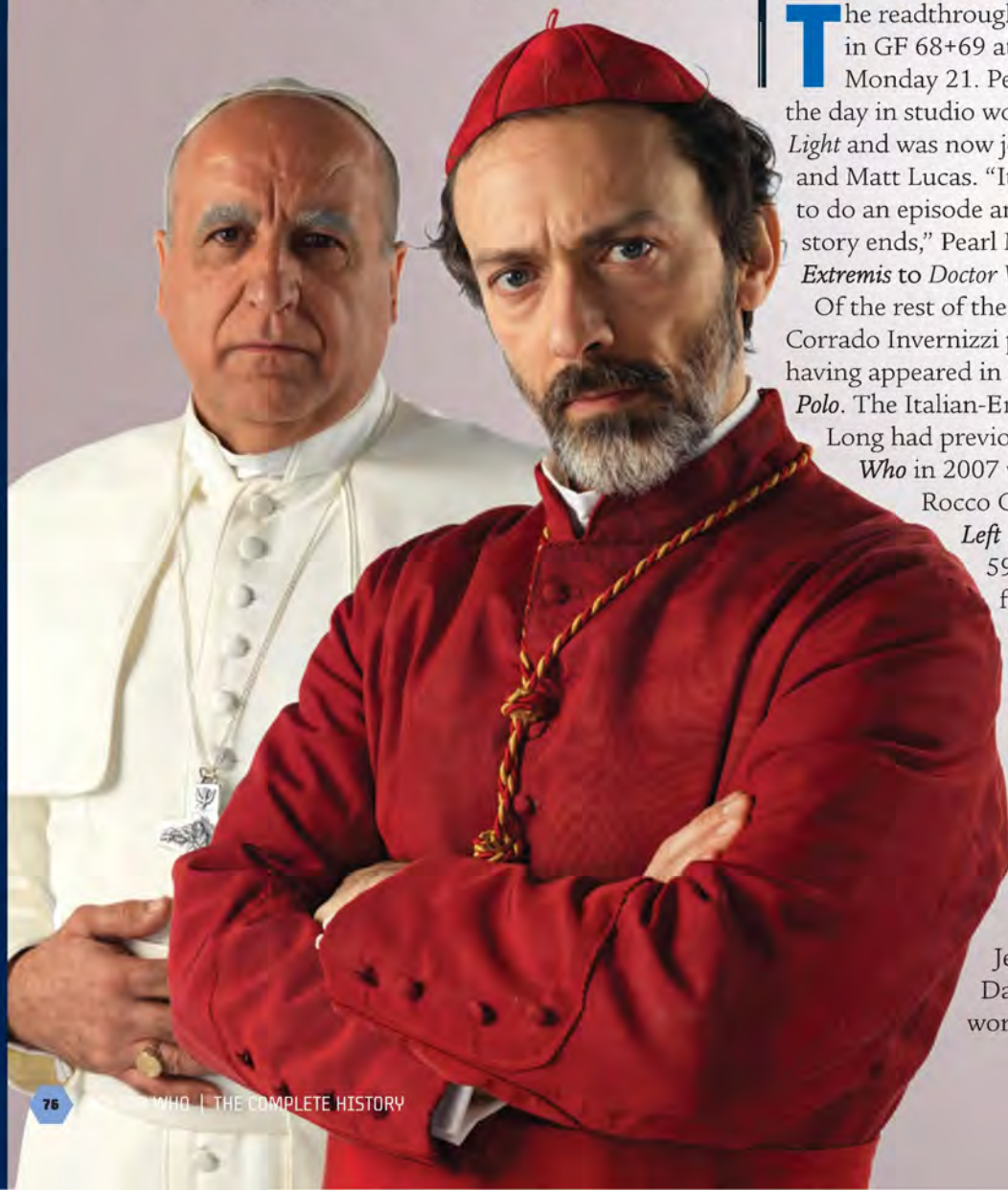
Cardinal Angelo and the Pope

The readthrough for Block 5 was held in GF 68+69 at Roath Lock at 7pm on Monday 21. Pearl Mackie had spent the day in studio working on *The Eaters of Light* and was now joined by Peter Capaldi and Matt Lucas. “It was quite challenging to do an episode and not know how the story ends,” Pearl Mackie commented of *Extremis* to *Doctor Who Closer Look*.

Of the rest of the cast, Genoa-born Corrado Invernizzi played Cardinal Angelo, having appeared in the 2014 series *Marco Polo*. The Italian-English actor Joseph Long had previously worked on *Doctor Who* in 2007 when he had played Rocco Colasanto in *Turn Left* [2008 – see Volume 59]; since then he had featured as Luigi in BBC One’s *Ashes to Ashes* and the US thriller series *Tyrant*; Long went in to read for a character called ‘Paul’ but soon realised from the audition script that he was playing the Pope. Playing Rafando was Ivanno Jeremiah with whom Daniel Nettheim had worked on the Channel

Below:

The Pope, played by Joseph Long, and Cardinal Angelo, played by Corrado Invernizzi.





4 science-fiction series *Humans*; before this, Jeremiah had featured on television in *The Jury* and worked on the *Doctor Who* audio adventure *The Ghosts of Gralstead* in 2014. Rome-born Francesco Martino was cast as Piero, having appeared in the Italian series *La freccia nera* (*Black Arrow*) and the science-fiction series *H+*, while French actor Laurent Maurel – playing Nicolas – had featured in the French thriller series *La vengeance aux yeux clairs*. The main Monk featured in the episode was played by Jamie Hill, a tall actor who was used to playing monsters on *Doctor Who* since 2011 including an uncredited Silent and the Foretold in *Mummy on the Orient Express* [2014 – see Volume 78]; by now, Hill was also a manager at the *Doctor Who* Experience. Ronke Adekoluejo was to play Penny in both Block 5 episodes, and the role of the man at the Pentagon

underwent a gender change to be given to Alana Maria.

In the shooting script – issued on Tuesday 22 November – the method of Missy's execution was changed to delete the axe; 'the Hooded Man [...] now steps forward to a big lever, mounted towards the edge of the platform. He throws a couple of switches. Lights on the lever glow – and the four globes surmounting the pillars at the four corners of the scaffold glow faintly, as does a small, square raised platform in the centre of the scaffold.' Rising out of the water was 'a vaguely TARDIS shaped box' which had the doors of the vault. The entrance to the Haereticum was now hidden behind the portrait of the Doctor's papal friend. The shooting script added a chronology, starting outside the vault chamber at 20.01 on Night 1 and then moving into space on Day X with no specific time recorded during the flashbacks. The cars arrived at the university at 19:10 on Night 2 with the visitors entering the lecture theatre at 19.15 and talking to the Doctor in his office at 19.28. Bill arrived home with Penny at 19.45 and the Pope burst in at 19.55. The TARDIS arrived in the Under Chapel at 21.15, the Doctor entering the Haereticum at 21.21 and approaching the cage at 21.24. Piero was found dead at 21.30 and Bill and Nardole appeared in the Pentagon at 12.31 on Day 2 and CERN at 21.35 on Night 2. The CERN countdown reached zero at 21.50 with Bill stepping into the White House at 21.55. The real Doctor received the email at 20.02 on Night 1 and phoned Bill at 20.20.

Also on Tuesday 22 November, a photoshoot of Joseph Long as the Pope was conducted at 3pm in Studio 2 at Roath Lock, while Romina Nicolacci also posed during the morning as the female Pope seen in the paintings. ■

Left:
Rocking the
sonic shades.

'A SAFETY DIVING CREW WAS PRESENT WITH LIFEGUARDS FOR THE RECORDING OF THE SCENES AT THE EXECUTION PLATFORM.'

Production

Shoot Day #1' commented Daniel Nettheim, placing a shot of the TARDIS with its doors opening onto the control room on his Instagram feed. Block 5 Day 1 was the 53rd anniversary of *Doctor Who*'s first broadcast, and was concurrent with the end of work on Block 4. Recording began with *Extremis* and was scheduled for the standard studio times of 7.30am to 7pm. The two TARDIS scenes were undertaken first on the standing set in Studio 4, starting with

Nardole confronting the Doctor about his blindness; Matt Lucas ad-libbed some of Nardole's speech to Bill about the Pope and the Vatican. There was then a move to the other regular set of the Doctor's university study in Studio 2 with the 2013 TARDIS prop for the Pope asking the Doctor to read the *Veritas*. Peter Capaldi found it rather difficult to play the Doctor blind, as it meant avoiding eye contact with his fellow actors – something which he felt meant that he was not giving the other performers what they needed to react to.



Below:
Director Daniel
Nettheim
chats to Ivanno
Jeremiah.



**Connections:
CERN**

▶ Nardole and Bill visit CERN (Conseil Européen pour la Recherche Nucléaire), the European Organisation for Nuclear Research, which had been established near Geneva, Switzerland in September 1954.



Below:
Recording
a scene at
the cage.

Only Peter Capaldi and Pearl Mackie were required for recording on Thursday 24 November. A line of priests waiting to see the Doctor was recorded first outside the Doctor's office in Studio 2, after which the team relocated to the vault chamber in Studio 1 as with work on *Oxygen*. Recording on the Doctor's solo scenes also employed his blind point

of view shots which were recorded using a special lens supplied by the Bristol-based production company Films at 59. The unit wrapped early at 6.30pm having completed the scene of Bill entering the White House office to see the TV broadcast, and the unscheduled opening scene of the episode showing the vault door.

The Oval Office climax was scheduled for Friday 25 November with the famous White House room once again recreated as in *The Impossible Astronaut/Day of the Moon* [2011 – see Volume 66], this time in Studio 3 at Roath Lock. Luke Baker and Marc Real of *Doctor Who* Interactive were on set to capture behind-the-scenes material on various days through the shoot and Matt Lucas was not required. Choreographer Ailsa Berk worked with Jamie Hill on his movement as the Monk while the prosthetic was applied by Steve Painter of Millennium FX; the Monk design had gone through various iterations since their very physical 'Kung Fu' conception, originally featuring wooden carved vambraces and a bolas because of an idea that one of them would take on an entire SWAT team. The finished version comprised a foam latex head donned like a balaclava, a facial





Above:
Cast members
run through
Missy's
execution
scene.

prosthetic glued to the performer's face, dentures made by Fangs FX, and latex gloves with extended fingers. Capaldi had been intrigued as to how the aliens would be realised, and Mackie found the full effect to be unnerving. The temporary voice of the Monk was provided on set by first assistant director Fletcher Rodley. During the morning, Ronke Adekoluejo attended a costume fitting.

Italian dialogue

Over the weekend, Peter Capaldi travelled back to his native Glasgow to attend a BAFTA Scotland event at Òran Mór on Sunday 27 November and was joined there by Steven Moffat. The star now had a week off to film material for the movie *Paddington 2* before he was required again in Cardiff. Work on Monday 28 required only Pearl Mackie of the regular cast, with Matt Lucas also released for a week. Following a scene for *The Pyramid at the End of the World*, the crew continued work on the *Pobol Y Cwm* backlot for scenes in Bill's flat as seen in the earlier episode, with Jennifer Hennessy returning after recording *Knock Knock* [2017 – see Volume

86] in August. For the Pope's unscripted Italian dialogue, Joseph Long delivered a speech which translated as: "What's going on? Who are you two girls? How did I end up here in this house? I thought we were returning to the Vatican! This is madness! Doctor, why did you bring me here?" The rest of the week was spent on *The Pyramid at the End of the World*.

Pink script revisions were issued on Monday 5 December. A short scene of security men watching over the limousines outside the university was omitted, and Nardole now emphasised his orders as being, "Without hope, without witness, without reward." Work on *Extremis* resumed on Wednesday 7 with location work at two familiar venues from 7.30am to 6pm. This week, Pearl Mackie had been released and so it was Peter Capaldi and Matt Lucas who took part in the meeting with the Catholics in the lecture hall back at the Reardon Smith Lecture Hall at the National Museum of Wales as used since July on *The Pilot* and *Oxygen*. Capaldi then

Connections: Time Lord order

▶ The Doctor swears an oath as a Time Lord of the Prydonian Chapter; he had been established as a member of the Prydonians in *The Deadly Assassin* [1976 – see Volume 26].



departed for a costume fitting while, after dark, Lucas recorded Nardole watching the visitors arrive in a black Mercedes S Class and four other cars outside Cardiff University, which had stood in as St Luke's for recording since June. Meanwhile, Michelle Gomez attended a costume fitting that afternoon at Roath Lock.

Gomez joined Capaldi and Lucas on location at St Andrews Quarry in Dinas Powys for recording from 7.30am to 4.30pm on Thursday 8 December. A boat and camera boat were provided by Richard Carless of Marine Film Services with Haydon Williams as the skipper, and a safety diving crew was also present with lifeguards for the recording of the scenes at the Execution Platform. Gomez ad-libbed some elements of her performance while Gareth Weekley stood in for Capaldi as the Doctor on some shots. The main scenes showing the lead up to the execution with the arrival of Nardole were recorded on this first day with limited daylight hours. The crew was back in Cardiff for a pre-Christmas drink and special screening of *The Return of Doctor Mystério* at Roath Lock from 6pm.

A similar schedule to Thursday was adopted back at St Andrews Quarry on Friday 9 to complete the execution platform sequences with the aftermath,

the Doctor's closing remarks and the opening shots of his arrival by boat; a further 'smoke boat' was provided by Marine Film Services to help create the alien atmosphere. Remaining work up to Christmas was then devoted to *The Pyramid at the End of the World*.

Following the festive holidays, production resumed on Tuesday 3

Right:

Daniel Nettheim talks through a scene with Peter Capaldi.



January 2017. Pearl Mackie and Matt Lucas undertook location work from 10am to 9.30pm at two venues in Cardiff. The scene in the Pentagon office was recorded first at the Glamorgan Building of Cardiff University, a venue frequently visited by the *Doctor Who* team since February 2005 for episodes such as *Boom Town* [2005 – see Volume 50] and *The Impossible Astronaut/Day of the Moon*. The CERN sequences were then recorded at the School of Management at the Llandaff Campus of the Cardiff Metropolitan University. Meanwhile, fittings for Monk supporting artists were conducted at Roath Lock by Steve Painter, Francesca Bernardelle and Laura Howard of Millennium FX. Daniel Nettheim Instagrammed the clapperboard for shot 400 of the shoot, decorated by a drawing of Mackie and Lucas, and the rest of the week was then spent recording *The Pyramid at the End of the World*.

Scenes of Bill and Nardole in the circular white space were recorded in Studio 3 after work on *The Pyramid at the End of the World*

Connections: The end

▶ Nicolas laughs, "We'll all go together when we go", a reference to the title of the darkly humorous song about global nuclear annihilation written by satirist Tom Lehrer and recorded in 1959.





Connections: Long wait

▶ The Doctor bemoans the fact that in Herman Melville's novel *Moby-Dick* (or *The Whale*), published in 1851, the title character does not appear until a very long way into the book.

Monk, with his prosthetics supervised by Rhiannon Morrell. The cast was cleared as soon as possible before the 7pm wrap so that the regulars could attend the Block 6 readthrough at 7pm. The Haereticum set was designed so that the cage containing the *Veritas* could be in situ or removed, increasing the apparent space of library shelves. The list of emails on the laptop included the names 'Bill Pullman' (the name of the actor who had played Oswald Danes in the fourth series of *Torchwood*, *Miracle Day*), 'Phil Bond' (the actor Philip Bond who had appeared in *The Mutants* (AKA *The Daleks*) [1963/4 – see Volume 1]), 'Christina Tom' (the show's standby art director), 'Daryn McLaughlan' (the art director on Daniel Nettheim's *Broadchurch* episodes) and 'Rob Hull' (the Guinness World Record holder of the largest collection of Daleks).

Below:

The Doctor prepares to become an executioner.

through to 7pm on Monday 9 January with Daniel Nettheim's family visiting him on set that day.

Recording on *Extremis* continued from 7.30am on Tuesday 10, starting with the Under Chapel scenes in Studio 1. After recording for *The Pyramid at the End of the World*, work on *Extremis* then resumed with the Doctor's party entering the Haereticum which had been constructed in Studio 4, adapting some of the vault exterior set from earlier episodes. Fittings for the regulars for Block 6 were scheduled throughout the day.

Haereticum set

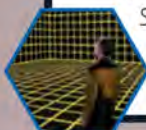
Wednesday 11 January began with material for *The Pyramid at the End of the World* on the TARDIS set, after which work in Studio 4 continued with Angelo leading the Doctor's party down the staircase, seeing the strange light and finally arriving at the cage to see the fleeing Piero. Jamie Hill again played the



Connections: Imaginary worlds

▶ Nardole compares the circular white room, and its offshoots, to the holodeck seen in various versions of the *Star Trek* television franchise, initially as a "recreation room" in *The Practical Joker*, a 1974 episode of the animated series, and then more frequently in the series

Star Trek: The Next Generation from 1987 onwards.



Right:
The Doctor briefly regains his sight, but at a cost.

Work in the Haereticum continued onto Thursday 12 January with the remainder of the scene where Piero was discovered, and then Nardole and Bill's search for the priest. Cliff Wallace of *Millennium* FX took over the make-up of Jamie Hill's Monks. This latter sequence was completed first thing on Friday 13, after which the cage was placed back on the set to record the Doctor starting to read the *Veritas* and encountering the six Monks, made up by the *Millennium* FX team of

Cliff Wallace, Francesca Bernardelle and Laura Howard.

Block 6 started work on Monday 16 January, meaning that Pearl Mackie was busy working with the other unit on *The Lie of the Land*. Peter Capaldi meanwhile recorded the Doctor's flight from the Monks through the corridor of shelves,



with Crispin Layfield supervising the action sequence and stunt performer Troy Kenchington standing in for Capaldi as required. Matt Lucas then performed inserts of Nardole in the circular white space set with a pick-up shot of a gas lamp illuminating also recorded. The final day of the block, Tuesday 17, was largely devoted to *The Pyramid at the End of the World* although the news report seen by Bill in the White House was recorded in Studio 3. Meanwhile, Peter Capaldi, Pearl Mackie and Matt Lucas spent the day recording the special series trailer on the Haereticum set in Studio 4. ■

PRODUCTION

Wed 23 Nov 16 BBC Roath Lock Studios: Studio 4 (The TARDIS); Studio 2 (The Doctor's Office)

Thu 24 Nov 16 BBC Roath Lock Studios: Studio 2 (Corridor Outside the Doctor's Office); Studio 1 (The Vault Chamber); Studio 3 (The White House - Smallish Office)

Fri 25 Nov 16 BBC Roath Lock Studios: Studio 3 (The White House - The Oval Office)

Mon 28 Nov 16 BBC Roath Lock Studios: Pobol y Cwm Lot (Bill's Flat - Kitchen/Hallway/Bedroom)

Wed 7 Dec 16 Reardon Smith Lecture Hall, National Museum of Wales, Park

Place, Cardiff (The Doctor's Lecture Theatre); Cardiff University, Museum Avenue, Cardiff (Ext The University)

Thu 8 Dec 16 St Andrews Quarry, St Andrews Road, Dinas Powys (Execution Platform)

Fri 9 Dec 16 St Andrews Quarry (Execution Platform; The Lake)

Tue 3 Jan 17 Glamorgan Building, King Edward VII Avenue, Cardiff (Pentagon Office); Cardiff Metropolitan University, Llandaff Campus, 200 Western Avenue, Cardiff (CERN - Large Foyer/Cafeteria)

Mon 9 Jan 17 BBC Roath Lock Studios: Studio 3 (Circular White Space)

Tue 10 Jan 17 BBC Roath Lock Studios: Studio 1 (The Under Chapel); Studio 4

(The Haereticum)

Wed 11 Jan 17 BBC Roath Lock Studios: Studio 4 (Narrow Stone Staircase; The Haereticum - Corridor of Shelves/The Veritas Cage)

Thu 12 Jan 17 BBC Roath Lock Studios: Studio 4 (The Haereticum - The Veritas Cage/Corridor of Shelves)

Fri 13 Jan 17 BBC Roath Lock Studios: Studio 4 (The Haereticum - Corridor of Shelves/The Veritas Cage)

Mon 16 Jan 17 BBC Roath Lock Studios: Studio 4 (The Haereticum - Corridor of Shelves); Studio 3 (Circular White Space/The Haereticum)

Tue 17 Jan 17 BBC Roath Lock Studios: Studio 3 (White House - News Report)



Post-production

Post-production and CGI elements for the episode included the zoom in on the alien planet and the landscape around the execution platform, the appearance of the Quantum Fold Chamber from the water, the Doctor's limited vision accorded via his sonic shades and his blinded eyes, the TARDIS' flight to the Vatican (using stock footage of the Italian skyline), the Haereticum interior and strange light in the stacks, the energy burning the Doctor's temples, Missy's apparent death, and the pixelation of the simulations.

The voice of the Monk was provided by actor Tim Bentinck – also the Australian-born 12th Earl of Portland, Count Bentinck – who was best known as David Archer in the Radio 4 rural soap *The Archers* and whose television credits included *By the Sword Divided*, *Grange Hill*, *Shadow Play* and *The Royal Bodyguard*. He had also featured in numerous *Doctor Who* audio adventures from Big Finish.

The edited episode opened with an unscripted 'Previously:' montage of the Doctor being blinded in *Oxygen* before continuing 'A Long Time Ago...', accompanied by an extended voice-over

Above:

The Monks take possession of the *Veritas*.

Connections: Game world

► Nardole compares the simulated Earth to the action-adventure video game *Grand Theft Auto*, a series originally launched in 1997 and developed by DMA Design. The Doctor also refers to Super Mario, the protagonist in a series of platform video games created by Nintendo and starting with *Super Mario Bros* in September 1985.



from Rafando about death being an increasing problem. Originally, the narration ran: "Our knowledge of practical mortality is unrivalled anywhere. The Fatality Index now fills an entire city, and is the cornerstone of our civilisation. All life anywhere can be ended here. The execution of a Time Lord, is more than the judicial destruction of a sentient individual. It is the highest challenge to our skills." As the Doctor arrived at the execution, Rafando told him: "Time Lords do not

like to die, and they decline to do so easily. Especially those who have already exceeded the regeneration limit." After Missy gave her condolences, she was originally to have added, mockingly, "Goodbye sweetie." "Finished?" asked Rafando, to which the Doctor replied, "Yes." Missy initially refused to kneel in the termination zone, and the order had to be repeated by Rafando. The short scene of the Doctor at the vault door, commenting on memories being worse in the dark, originally came after the Doctor reached to pull the execution lever; the comments about nobody knowing that he was blind were added in ADR (additional dialogue recording), and the sequence at the vault was introduced by the caption: "Today..."

After the opening titles, there was originally a short scene of some black cars pulling up outside the university at night, watched from a window by Nardole. When Angelo entered the lecture theatre, he originally said: "Is it time, Doctor? Time, at last, for your confession." "Confession? What am I confessing to?" asked the Doctor. "It was an offer made



a very long time ago, but I doubt you remember. However, it is not our business here today. Apologies if we startled you," said the cardinal, adding, "It is a matter of some urgency." When Nardole scrambled up to the stage, the Doctor asked of the visitors: "Are they selling something? Just get some of those sponges..." "S'cuse us!" said Nardole to the cardinals, with the Doctor adding, "Sorry - Mum's cross." Pulling the Doctor aside, Nardole told him that the matter sounded important: "So if you think of anything, you know, funny, or clever, experiment with not saying it." "Excuse me - matters are pressing," said Angelo as he continued to explain about the Doctor's recommendation. When the Doctor recalled Pope Benedict, Nardole originally interjected to him to stop and "experiment!". As the Doctor apologised for not recognising the Pope, he added: "I thought you'd look more - Popelike." "Probably you didn't," commented Nardole. "Though possibly I'm setting the bar too high," added the Doctor.



Angelo initially translated for the Pope: "Your wisdom has been spoken of for more centuries than seems possible." "You know, I can probably do without the translator..." began the Doctor, causing Nardole to squeeze his arm in warning. "Your kindness too is renowned among all who have met you. Please show your wisdom and your kindness this day," continued Angelo.

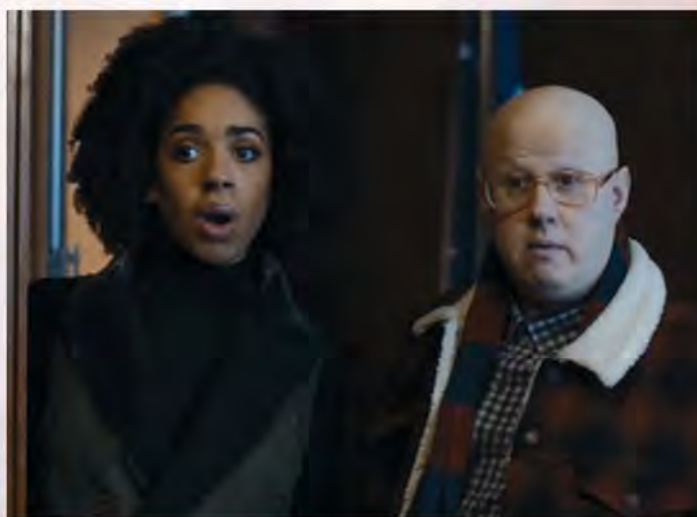
The truth

In the Doctor's office, when Angelo spoke to the ancient text buried in the Vatican libraries, the Doctor commented: "I'm sure there are many." When the cardinal added that it was older than the church itself, the Time Lord asked: "Who isn't?" After Angelo commented on the mass suicide of the translating sect, the Doctor asked: "I assume something has happened a bit more recently than early Christianity? Otherwise you really need to work on

your response time." The flash frame of death scenes using library footage were inserted in post-production and had not been scripted. After Angelo explained that the translators had chosen Hell, Nardole commented: "Okay. Awesome plan! Everybody stop reading that book!" "The translation - where is it now, and how many copies?" asked the Doctor grimly. "Unknown," replied the cardinal. "Oh, good, well done," retorted the Doctor. "By now, copies could be all over the world. Possibly even online," said Angelo. "Well, never mind, eh?" countered the Doctor with sarcasm, "It's not like it's dangerous or anything? Where's the original?" "It remains in the Vatican vault," said Angelo, then translating as the Pope said: "It is said your eye reads all words in all tongues and that you have survived many dangers. In this text there is danger to all humanity and it must be faced." After the request for the Doctor to read the *Veritas*, the lecturer pondered: "The *Veritas*. The truth. Truth so true you can't live with it. Is that looking into Hell... or seeing the light?" "His Holiness's personal jet is on standby," explained the cardinal, "we can be in the Vatican in under two hours. Will you

Left:
The Doctor heads for a final confrontation with his nemesis.

Below:
Bill and Nardole face a reality crisis.





Above:
The blind
Doctor
encounters
the *Veritas*.

help us in this darkest hour?" "Currently, I am more than usually interested in... illumination," commented the Doctor. "Doctor?" asked a worried Nardole as the Doctor tossed him the TARDIS key, ordering: "Start her up." "You're just going to give them a lift? In the TARDIS?" asked the incredulous Nardole. "If there are translations of the *Veritas* online, a jet isn't fast enough. Battle stations, Nardole. Extremis!" the Doctor insisted.

In the flat, after Moira told Bill and Penny not to do anything that she

wouldn't do, Bill originally grinned: "Well, there's a slight chance we might." The next scene in the kitchen as the women poured tea began with Bill saying: "Okay. So tell me some nice lies." "Do they have to be lies?" asked Penny. "If you do it well, how will I know?" said Bill. "Okay, yeah," agreed her new friend, as Bill told her, "You don't have to look so nervous."

This was replaced by a new dubbed line about the pair being alone at last. After the "pipe" sounds from the bedroom, when Bill asked Penny if she was okay, Penny said: "Jumpy, that's all." "You know what? You look so guilty," smiled Bill fondly.

When the furious Bill burst into the TARDIS, she originally told the Doctor: "You are my tutor, you are my friend – but that does not mean you can just come round my flat any time you feel like it and park your TARDIS on top of my laundry basket!" Nardole looked at the laundry basket around which the TARDIS had materialised; "Oh, is that what it is?" he said, telling the priests, "You lot, probably stay away from this. Very, very scary." "You sound a tiny bit cross, Bill," observed the Doctor from the bookshelves. As the Doctor moved to his chair, Angelo commented to him: "Beautiful – your TARDIS. Didn't Pope Benedict speak of it as the ultimate wonder of any age?" "Yeah, think so – hard to tell, with that rose in her teeth," said the Doctor as he worked on his reading device with

Connections: Mail on specs

- ▶ The Doctor has previously used his sonic sunglasses, first seen in *The Magician's Apprentice/The Witch's Familiar* [2015 – see Volume 80], to send

messages in *Hell Bent* [2015 – see Volume 84].



the sonic. When Angelo recalled how the Doctor had previously said that his confession would take too much time, the Doctor originally added: "Which, coming from me, means more than you'd think." Angelo's comment that the Doctor seemed like a man with regret was added in ADR, replacing Rafando asking if he had requested a priest. At the execution, when Nardole said he had permission to kick the Doctor's arse, he added: "Without hope, without witness, without reward."

Seeing in the dark

When Bill emerged from the TARDIS into the Under Chapel, she commented: "Bit... dusty." "This is the Under Chapel. Very few have stood here," explained Angelo. "Not even the cleaners, eh?" asked Bill as the TARDIS door slammed shut behind her. When Nardole commented that the Doctor was an "old dog" on seeing the portrait of Pope Benedict, the Time Lord added: "What a night. What a Pope." "Ohh, there's a T-shirt!" observed Nardole, causing Bill to say, "Boys, stop objectifying Popes." As Angelo led the way, Nardole added: "Bit late for him." "Shush!" said the Doctor. Passing down a narrow staircase, Bill asked: "So - you read a book and afterwards you die?" "True of any book, if you wait long enough," replied the Doctor, as Bill laughed but looked at him curiously.

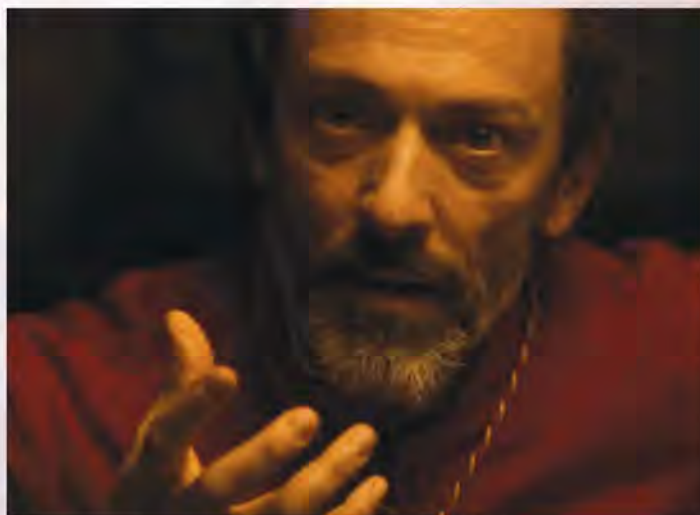
The flashback with Missy telling the Doctor that she would be good originally came later in the episode as part of a longer scene, and the Doctor's question about Bill's date was added in ADR. When Nardole described the light ahead of the party, Bill asked him: "You okay?" "Yep, just... helpfully remarking," claimed Nardole. "Doesn't look like gaslight.

Looks... electrical," observed Bill as the Doctor, looking through his shades, commented, "Yes, that's consistent with the heat signature."

After Piero bolted from the case and the Doctor called out to Angelo, the cardinal - examining the wall - called back: "That's not possible!" After Nardole's comment about the lock being shot out, the cardinal asked: "He had a gun?" When the Doctor asked Nardole and Bill what the CERN email said, Bill glanced at Nardole and asked the Doctor: "These are scientists, yeah?" "Yes, obviously," agreed the Doctor. "Physicists, engineers. That's what they all are, at CERN?" checked Nardole. "Yes, why?" said the Doctor before asking again about the email's contents. When the Doctor pondered what could scare both physicists and priests, Nardole answered: "The unseeable. It's where they both work." After the Doctor told his friends to check on the priest who was about 50 feet away, Bill asked: "How do you know?" "I can see in the dark," claimed the Time Lord as he sonicked the book, saying, "Interesting. There's nothing in here except words. Thought there might be a psychic charge or something - but it's

Below:

"There is an ancient text buried deep in the most secret of the Vatican libraries."



just... information. Information that kills. We need to talk to that translator."

When the white light appeared from the portal, Nardole and Bill's dialogue replaced the original exchange; "That wasn't where the door was," observed Bill, with Nardole agreeing, "No. That's another one." The Doctor's words to what he assumed was the approaching Angelo were changed in ADR to the comment that he might burn out his brain: "If you want to hear my confession, now might be the time." As the Doctor convulsed in pain, the flashback at this point originally began with Rafando concluding the consultation.

A stock shot of the Pentagon opened the scene in the office which Nardole and Bill entered from a cupboard. Inside the white circular space, after Nardole commented on the alien technology, he added: "Planet Earth has got rats. Alien rats. This is their lair, and these are their

tunnels." "But what are they? How do they work?" asked Bill. "Spatio-temporal portal interfaces," explained Nardole. "What does that mean?" asked the student. "It means 'I don't know' in big words," replied Nardole. "But what's this got to do with the *Veritas*? Do aliens want the *Veritas* too? Why would they?" pondered Bill, not noticing her friend going in and out of the portals until his head popped from one oval to summon her.

On emerging from the cupboard into the foyer, Bill originally saw a sign for 'CERN' with Nardole commenting this was where the *Veritas* was sent; this dialogue was placed over a later scene. Meanwhile, the Doctor's comments to what he believed was the cardinal were: "Ah. Sorry. What was I saying, Cardinal? Confession is good for the soul, according to you lot... Oh, I hope I'm going to get a bit of focus." When the Doctor commented on borrowing

Below:

The Doctor takes a seat behind the Resolute desk.



from his future, he added: "Life energy. Bit inefficient." On noting that he had to read the *Veritas*, he said: "I confess: that's more important to me than it should be." As the Monk took the book from the Doctor, the Doctor commented: "You know, this doesn't make any sense. Why strap me into the reading chair for my own protection, then take away the book it's supposed to protect me from? [...] You know what this is like? It's like you're testing me. Trying me out. Poking me with a stick and seeing what happens. Big mistake." When the Doctor compared the situation to a game, he added: "And I am never playing." After the Monk reiterated that it *was* a game, the Doctor informed it: "I'll tell you the three bad moves you've already made. But not the one you're about to make. First – you don't smell like Cardinal Angelo. That's why I knew from the start. Second, my sonic screwdriver is still in my hand. And the third's more of a general advantage I have – I'm used to the dark."

Shadow world

In the Oval Office, the Doctor originally knew that the new arrival was Bill and greeted her; this was changed in ADR. After the Time Lord explained about the shadow people, he added of the demon: "But he made the shadow people too well and some of them started to realise they were fictions, and rebel against him, to spoil his game." After Bill confirmed that she had experienced the shadow test, she added: "Okay. So it's a magic trick. A clever magic trick, but just a trick and an old story..." When the Doctor explained that the shadow people would always generate the exact same numbers, he added: "Just a glitch – I'm sure they'll fix it in the next upgrade." As the Time Lord commented that simulants could rebel, he



Left:

"In darkness, we are revealed."

continued: "Start disrupting the game by removing themselves." People who escaped were "wiping data from the enemy hard drive". After the Doctor admitted that he had said the numbers too, Bill asked: "Is that why you were crying?" "Yes," agreed the Doctor, then asking, "Your mum, in your head. The one you talk to? Does she feel real?" "Yes," said Bill. "Is she?" asked the Doctor, before comparing her to people in computer games. "Who are you?" asked Bill suddenly, "Mum, who is he, who's that man?" "Bill? I'm the Doctor," said an astonished Doctor. "Who's the Doctor?" frowned Bill, then panicking as she started to pixilate, "Who's Mum? Who am I?" Addressing the Monk who then entered after Bill's disintegration, the Doctor asked: "Did you have to do that in front of me? Was that necessary?" When the creature said that the Doctor was information to be gathered, the Doctor said: "I'm a subroutine. I'm a fantasy on a hard drive. I'm not the Doctor, I'm not even real." The final voice-over of the Doctor outside the vault was also a post-production addition.

Because of the cliffhanger nature of the threat from the Monks, the trailer for *The Pyramid at the End of the World* was placed after the main cast and crew credits and before the closing copyright caption. ■

Publicity

Right:

"Please, I'll do anything. Just let me live."

▶ *Doctor Who Magazine* Issue 512 was published on Thursday 4 May and included a four-page preview for *Extremis* in which Benjamin Cook talked to Steven Moffat. Bill's date with Penny was disrupted by a papal intervention in a 1'02" preview clip for *Extremis* released on Sunday 14 May. Although it had been hoped that Steven Moffat would be available to chat about *Extremis* as part of the aftershow on *Doctor Who: The Fan Show*, his work on the script for the Christmas Special took priority; consequently, script editor Nick Lamborn deputised for him in a recording on Stage 3 at Television Centre on Monday 15 May.

Right:

Doctor Who Magazine's cover for *Extremis*.



▶ Heralded by a shot of the Doctor in his sonic shades, Mark Braxton selected the adventure as the *Pick of the Day* for Saturday in *Radio Times* on Tuesday 16 May, describing it as a 'typically classy mind-bender from outgoing showrunner Steven Moffat'. The Saturday night BBC One listing emphasised the broadcast with another shot of the bespectacled Doctor. A 10" trailer was released the same day, and Michelle Gomez informed *Digital Spy* that she would be leaving *Doctor Who* with Peter Capaldi and Steven Moffat, telling Morgan Jeffery: "My guys, my lads, Missy's men - they're all moving on!" Speaking to Huw Fullerton of *Radio Times*, Gomez added: "Everybody's leaving, so I'm going too. I mean, what would I do without Peter and Steven? Who would I be? Nah, it's

done now. It's over. It's the end of a chapter."

- Steven Moffat's 24" introduction to his episode was released on Wednesday 17, along with the launch of the arcade game *Doctor Who: Time Vortex 360* on BBC Taster. Meanwhile, Dan Wootton of *The Sun* claimed that the BBC saw comedy actor Richard Ayoade as Peter Capaldi's successor as the Doctor. "One of the strangest *Doctor Who* stories," was how Peter Capaldi described *Extremis* in the 41" preview from the cast on Thursday 18 with Pearl Mackie referring to it as "quite a cerebral episode". From 10.45am on Thursday 18, Mackie chatted live to Eamonn Holmes and Ruth Langsford of ITV's *This Morning* at London Studios, explaining how she had been recognised on her recent visit to LA. When asked if

she would be remaining with the series after Capaldi's departure, she replied: "I don't know. Well, it's not up to me, I don't think, but I feel like Peter is such a wonderful Doctor. And I think the dynamic he and I have playing the Doctor and Bill together is something that really works, [but] that's not to say it wouldn't work with a new Doctor." Meanwhile, the BBC released a 3'10" video in which Gomez took on the challenge of filling in the missing words from YouTube comments about Missy. The arrival of Missy at her execution then formed another 45" preview clip for the episode on Friday 19, and Gomez answered the question *What Has Missy Been Doing Since Series 9?* in a 32" video from the BBC: "She's been playing a lot of golf, which is tough with a Dalek cos they're not very nimble but... she always wins."



Left:
Piero,
translator of
the *Veritas*.

Broadcast

Right:

Nardole and Bill receive a frosty reception at the Pentagon.

▶ “Hold on to your sonic sunglasses,” said the BBC One continuity announcer before warning that the Doctor “may have been robbed of some of his usual visual brilliance” in *Extremis*. As usual for the series, the episode’s broadcast was preceded by the BBC’s ‘Pure Drama’ branding. In a 50-minute slot, the episode aired from 7.25pm, overlapping with the end of *Take Me Out* and the start of *Britain’s Got Talent* on ITV. The closing credits were accompanied by a continuity announcement promoting the online taster of the *Time Vortex 360* game. Ratings for the show were an improvement over *Oxygen*, with *Doctor Who* again beating *Take Me Out* but not triumphing over the highly rated *Britain’s Got Talent*; it was however in the weekly top 20 again.

Below:

“Warning, I have full permission to kick your arse.”



Gomez in a 1’30” video released by the BBC on Saturday 20. The 17’39” edition of *Doctor Who: The Fan Show* was also released with Christel Dee’s chat with Nick Lambon, and also her talk with Michelle Gomez which had been recorded on Stage 1 at Television Centre on Monday 27 March.

▶ The new edition of ABC2’s *Whovians* broadcast in Australia after *Extremis* on Sunday 21 saw Rove McManus joined by Adam Richard, Bajo, engineer and *Australia Wide* presenter Yassmin Abdel-Magied and ABC radio host Rhianna Patrick, as well as Australian director Daniel Nettheim who discussed the making of his episodes, his uncle David Nettheim’s appearance in *The Enemy of the World* [1967/8 – see Volume 11] and a forthcoming reference to Donald Trump. National news anchor Jeremy Fernandez was the next hopeful to audition as a fact-intensive Doctor and behind-the-scenes material was also shown. The same on-set action

formed a 1'12" video from the BBC the same day in which Peter Capaldi and Pearl Mackie discussed the Monks. A 1'06" *Doctor Who Closer Look* about *Extremis* appeared from BBC America on Sunday 21 May with comments from Capaldi and Mackie. Another BBC video on Monday 22 then offered 1'14" of Steven Moffat and Pearl Mackie ruminating on the perils of dating for the Doctor's companion in *Alone At Last?*.

- ▶ A signed repeat of *Extremis* aired on BBC Two at 1.50am (scheduled for 1.40am but delayed by *Later... with Jools Holland*) the following Saturday and attracted around 340,000 viewers. In the *Radio Times* for 6-12 May, the *Feedback* section included a letter from John Young of Stanhope who recalled that the TARDIS supposedly translated different languages for its crew, commenting: 'Strange then that it couldn't cope with Italian... or does the Pope have a secret device to stop his innermost thoughts being voiced?' Steven Moffat explained that the scene 'worked better with the Pope speaking Italian', noting that 'the Doctor's translation ability has wobbled before, so it's just having another off moment'.



- ▶ Reviewing the episode in *Doctor Who Magazine*, Graham Kibble-White declared that the simulated Doctor's encounter with the Monks had been 'a distinctive turn back towards a more ambitious, high-concept storytelling style'.

Above:
Suppressing
the truth.

ORIGINAL TRANSMISSION

EPISODE	DATE	TIME	CHANNEL	DURATION	RATING (CHART POS)	APPRECIATION INDEX
Extremis	Saturday 20 May 2017	7.25pm-8.15pm	BBC One	48'48"	5.53M (20th)	82

REPEAT TRANSMISSION

EPISODE	DATE	TIME	CHANNEL	DURATION	RATING (CHART POS)	APPRECIATION INDEX
Extremis	Saturday 27 May 2017	1.50am-2.40am ¹	BBC Two	48'48"	0.34M (-)	-

¹ Signed repeat. Scheduled for 1.40am-2.30am

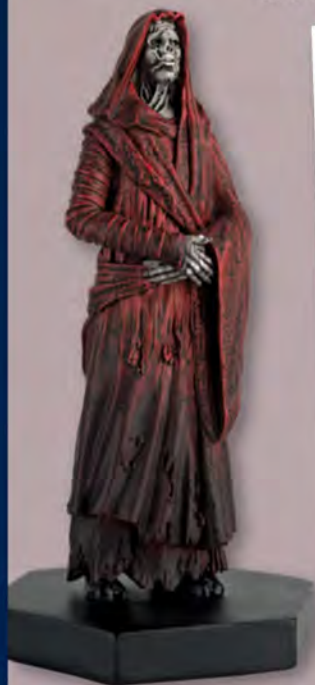
Merchandise

Right:

Behind the scenes on the DVD extras.

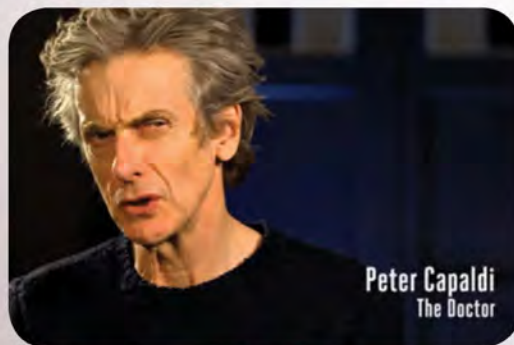
Below and right:

Eaglemoss' figurine of a Monk, the original DVD release of the 2017 series, which included *Extremis*, and the Steelbook artwork by Alice X Zhang.



Extremis was included on the BBC Worldwide DVD and Blu-ray set *Doctor Who: Series 10: Part 1* released on Monday 29 May 2017, accompanied by a 2'30" *Inside Look – Extremis* with contributions from Steven Moffat, Peter Capaldi and Pearl Mackie. The episode was also part of *Doctor Who: The Complete Series 10* which was released on Monday 13 November; the bonus features included the *Inside Look* featurette and the corresponding aftershow edition of *Doctor Who: The Fan Show*. A Blu-ray Steelbook edition of the box set was also available, exclusive to Amazon UK, with artwork by Alice X Zhang.

Published by Eaglemoss in April 2018, issue 121 of the *Doctor Who Figurine Collection* came with a figurine of a Monk. ■



Cast and credits

CAST

Peter Capaldi.....The Doctor
Pearl Mackie.....Bill
 and
Matt Lucas.....Nardole
 with
Michelle Gomez.....Missy
Jennifer Hennessy.....Moirā
Corrado Invernizzi.....Cardinal Angelo
Joseph Long.....The Pope
Ronke Adekoleje.....Penny
Ivanno Jeremiah.....Rafando
Francesco Martino.....Piero
Alana Maria.....Pentagon Woman
Laurent Maurel.....Nicolas¹
Jamie Hill.....Monk
Tim Bentinck.....Voice of the Monk

¹ Credited in listings publications as Nicholas

UNCREDITED

Dominic Barrow.....Executioner
Richard Allen, Ali Faramarz, Robert Muza,
Simon Carew.....Guards
Joel Mulzac, Clem So.....Rafando's Guards

Jon Titchenor Guy Thomas.....Oarsmen
Gareth Weekley.....Double for The Doctor
Charles Taylor, Maurice Spring, Terence Brady, Rob Eadsforth.....Cardinals
Marcel Carrier, Lee Innocent, Ejder Surel, Garry George-Veale, Mel Bevan, Tim Campbell, David Wickenden, David Hugh Jones, Darius Mortazavi, Howard Jones, Richard Michael, Richard Bartley, Jeff Rees, Kevin Legg, James Hannon, Steve Apelt, Huy Truong.....Priests
James O'Neill, Kurt James, Steven Lathwell, Peter Reynolds, Daniel Jones.....Drivers²
Julian Gillard, Martyn Smith.....Security Guards
Romina Nicolacci.....Female Pope
Patricia Dichler.....Military Personnel
Stuart Matthews, David Kelly, Nikhil Theva Raj, Titto Ogendengbe, Jacob Nwogu, Allun Thomas, Benedict Hurley, Alex Nagle, Martyn Jackson, Steve Williams, Funmini Obilande, Sian Mathias, Tabitha Taya, Buhlebenkosi Sigogo.....Pentagon Staff
Tim Reid, Liam Carey, Sam Rush, Andrew Sweet, James O'Neil.....Monks
Patricia Dichler, Stuart Matthews, David Kelly, Nikhil Theva Raj, Titto Ogendengbe, Jacob Nwogu, Allun Thomas, Benedict Hurley, Alex Nagle, Martyn Jackson, Steve Williams, Funmini Obilande, Sian Mathias, Tabitha Taya, Buhlebenkosi Sigogo, Ayaisha Griffith, Karen Poolman, Jo Barb, Marie Man, Amy Thomas, Bi Wen Tutssel, Ellen Thomas, Carolyn Joliffe, Marnie Delroy-Buelles, Rachel Husband, Kelsie Reardon, Vanessa Williams, Dee Derbyshire, Nicola Rodgers, Rebekkah Price, Marina Baibara, Gareth Hall, Leroy Rahman, Eric Aydin-Barberine, David Singh, John Sinclair, Sean Magee, Bruce Robertson, Richard Parry, Benjamin Hutchings.....CERN Workers

Left:
 Nicolas drinks
 to the end of
 the world.





Above:
Bill and Nardole
are in search
of the truth.

Troy Kenchington Stunt Double for the Doctor
Adele Flynn Reporter
Ray Rushton-Gough President

² Not in finished programme

CREDITS

Written by Steven Moffat
Produced by Peter Bennett
Directed by Daniel Nettheim
Stunt Coordinator: Crispin Layfield
Stunt Performer: Troy Kenchington
Choreographer: Ailsa Berk
1st Assistant Director: Fletcher Rodley
2nd Assistant Director: James DeHaviland
[uncredited: Delmi Thomas]
3rd Assistant Director: Christopher J Thomas
[uncredited: Rhun Ilewelyn]
Assistant Directors: Rhun Ilewelyn, Lauren Pate
[uncredited: Ella Morgan, Chris Pratt, Arianrhod
Engeboe, Max Webborn, Alun Reynolds]
Unit Drivers: Sean Evans, Paul Watkins
[uncredited: Jolyon Davey, Steve Darwent,
Beverly Spinola, Darren Davies, Montil Jalil,
Graham Huxtable, Paul Carmichael]
Location Manager: Iwan Roberts
Unit Manager: Beccy Jones
Production Manager: Adam Knopf

Production Coordinator: Sandra Cosfeld
Assistant Production Coordinator: Nicola Chance
Production Assistants: Virginia Bonet, Jamie Shaw
Assistant Accountant: Matthew Fisher
Art Department Accountant: Bethan Griffiths
Script Supervisor: Nicki Coles
[uncredited: Richard Pask, Megan Lynas]
Script Executive: Lindsey Alford
Script Editor: Emma Genders
Camera Operator: Mark McQuoid
[Steadicam: Rob Carter]
Focus Pullers: Jonathan Vidgen, Elhein De Wet
[uncredited: Will Huckle, Paul Andrew,
Steve Rees, Matt Lepper]
Camera Assistants: Gethin Williams, Drew Marsden,
Dan Patounas [uncredited: Scott Waller,
Victoria Harris, Rhodri Wyn Davies]
Grip: John Robinson [uncredited: Gary Sheppeard]
Assistant Grip: Sean Cronin
[uncredited: Elliot Sebestyen-Regan]
Sound Maintenance Engineers: Tam Shoring,
Christopher Goding [uncredited: Daf Parry]
Gaffer: Mark Hutchings
Best Boy: Andy Gardiner
Electricians: Gawain Nash, Gareth Sheldon,
Bob Milton, Sion Davies, Andrew Williams
Supervising Art Director: Paul Spriggs
Art Director: Tim Overson

Standby Art Director: Christina Tom
 Set Decorator: Adrian Anscombe
 Production Buyer: Jen Saguaro
 Prop Buyers: Jo Pearce, Charlotte Lailey de Ville
 Draughtperson: Matt Sanders
 Prop Master: Paul Smith
 Props Chargehand: Kyle Belmont
 Standby Props: Matt Ireland, Jonathan Barclay
 Prop Hands: Scott Howe, Nigel Magni, Matt Watts
 Storeman: Jamie Southcott
 Concept Artist: Darren Fereday
 Graphic Artist: Lawrence Hearn
 Graphics Assistant: Jack Bowes
 Standby Carpenter: Paul Jones
 [uncredited: Jamie Farrell]
 Rigging: Shadow Scaffolding
 Standby Rigger: Colin Toms
 [uncredited: Gethyn Mills, Tom Williams]
 Practical Electricians: Callum Alexander,
 Austin Curtis
 Props Driver: Gareth Fox
 Construction Manager: Terry Horle
 Construction Chargehand: Dean Tucker
 Chargehand Carpenter: John Sinnott
 Carpenters: Tim Burke, Keith Richards, Matt Ferry,
 Campbell Frazer, Chris Daniels, Joe Painter,
 George Rees, Alan Jones, Dan Berrow,
 Mike Venables, Tom Berrow
 Construction Driver: Jonathan Tylke
 Construction Labourer: Jason Tylke
 Head Scenic Artist: Clive Clarke
 Painters: Steve Nelms, John Nelms, Paul Murray,
 Debby McShane
 Model Makers: Alan Hardy, Jamie Thomas
 Assistant Costume Designer: Zoe Howerska
 Costume Supervisor: Kat Willis
 Costume Assistants: Rebecca Cunningham,
 Leila Headon, Jenny Tindle [uncredited:
 Gayle Woodsend, Ali Kedge, Edwina Jones]
 Make-up Supervisor: James Spinks
 Make-up Artists: Megan Bowes, Lolly Goodship
 [uncredited: Cathy Davies]
 Unit Medic: Glyn Evans
 Casting Associate: Ri McDaid-Wren
 Casting Assistant: Louis Constantine

Business Affairs Executive: Carol Griggs
 Assistant Editors: Becky Trotman, David Davies
 VFX Editor: Dan Rawlings
 Post Production Coordinator: Hannah Jones
 Dubbing Mixer: Mark Ferda
 ADR Editor: Matthew Cox
 Dialogue Editor: Darran Clement
 Sound Effects Editor: Harry Barnes
 Foley Editor: Simon Clement
 Foley Artist: Julie Ankersen
 Titles: BBC Wales Graphics
 Title Concept: Billy Hanshaw
 Online Editors: Geraint Pari Huws, Mark Hardyman
 Assistant Online Editor: Christine Kelly
 Colourist: Gareth Spensley
 Music Conducted & Orchestrated By Alastair King
 Music Mixed By Jake Jackson
 Music Recorded By Gerry O'Riordan
 Music Score Assistant: Jack Sugden
 Original Theme Music: Ron Grainer
 With thanks to the National Orchestra of Wales
 Casting Director: Andy Pryor CDG
 Head of Production: Gordon Ronald
 Production Executive: Tracie Simpson
 Post Production Supervisor: Samantha Price
 Production Accountant: Simon Wheeler
 Sound Recordist: Deian Llŷr Humphreys
 [uncredited: Richard Brooks]
 Costume Designer: Hayley Nebauer
 Make-up Designer: Barbara Southcott
 Music: Murray Gold
 Visual Effects: Milk, BBC Wales VFX
 Special Effects: Real SFX
 Special Creature Effects & Prosthetics:
 Millennium FX
 Editor: Xavier Russell
 Production Designer: Michael Pickwood
 Director of Photography: Ashley Rowe
 Line Producer: Steffan Morris
 Executive Producers: Steven Moffat, Brian Minchin
 BBC Studios
 Cymru Wales
 bbc.co.uk/doctorwho
 © BBC 2017
 albert+ sustainable production

Profile

JENNIFER HENNESSY

Moira

Born Jennifer Ann Hayes in autumn 1970, she was raised in Heaton Moor, a suburb of Stockport, Greater Manchester. Her stage name Hennessy has been credited variously as Hennesey, Hennessey and Hennesy.

The choir of her local primary school had released albums since the early 1970s and aged 10 she was part of the St Winifred's School Choir which had a Christmas number one with the novelty single *There's No One Quite Like Grandma* in 1980, and TV performances including *Top of the Pops*.

In her teens, Jennifer joined sisters Angela and Catherine to form folk trio The Hayes Sisters and played Manchester folk clubs.

She took drama lessons at the local St Anne's Roman Catholic Secondary School before progressing to Theatre Studies at Aquinas College, Stockport.

She next left Stockport to study at London's Central School of Speech and Drama for three years. Graduating in 1992, her most notable role was Varya in *The Cherry Orchard*.

She made a double acting TV début with two programmes transmitted the same evening, 29 December 1994. She appeared in ITV's *The Bill* as a barmaid, and also featured in Steve Coogan comedy *Pauline Calf's Wedding Video* shown on BBC2.

Early television was mixed with stage work including *Jake's Women* (1998, Manchester Library Theatre), *Who's Afraid of Virginia Woolf?* (1998, Nottingham Playhouse/Mercury, Colchester) and

The Phoenix and the Carpet (1999, Chester Gateway).

The versatile actress adapted to TV comedy character parts with some success. Following an appearance in radio comedy *People Like Us* (1997), she also featured in the subsequent 1999 TV series. She played many characters in *World of Pub* (2001), was Jude in *The Office* (2002), and took one-off roles in *Barbara* (2002), *Two Pints of Lager and a Packet of Crisps* (2003), *The Lenny Henry Show* (2004), *Green Wing* (2006), *Pulling* (2008), *All at Sea* (2013) and *No Offence* (2017). Chief comedy parts came as Janice McConnell in *The Cup* (2008) and as Rachel Groves in *Psychoville* (2011).

She has worked widely in all fields of TV drama including soaps and popular serials. She made appearances as DC Kay in *Coronation Street* (1997/9) and returned as golf instructor Bernie Sayers in 2009. She was Juanita Taylor in *Emmerdale* (2003) and has featured in *Casualty* (1998/2009) and spin-off *Holby City* (2005/12). She made a further three appearances in *The Bill* (1998/2002/5) and took five roles in *Doctors* between 2003 and 2016.

One of her first regular roles was Saffron in *Undercover Heart* (1998) and she soon racked up a range of TV drama credits in *Chambers* (2000), *Clocking Off* (2000),

Right:
Starring in
*In Denial
of Murder*
in 2004.



Buried Treasure (2001), *Swallow* (2001), two Christopher Eccleston dramas *Flesh and Blood* (2002) and *The Second Coming* (2003), *William and Mary* (2003), *Danielle Cable: Eyewitness* (2003), *A Touch of Frost* (2003), *Fat Friends* (2004) and *Conviction* (2005).

After having daughter Nancy in 2005, she and partner Andy moved back from London to Stockport with no negative effect on her career – indeed she felt this opened up northern drama roles she might not otherwise have been offered.

Hennessy went onto star in *Drop Dead Gorgeous* (2007), took two different roles in *Moving On* (2009/13) and appeared in *Paradox* (2009), *Hollyoaks* (2011), *Scott & Bailey* (2011), *Shameless* (2012), *Foyle's War* (2013), *Utopia* (2014), *The Village* (2014), *Vera* (2015) and *The A Word* (2017). She was Liz Runcie in supernatural drama *Marchlands* (2011), which also starred Alex Kingston and Jodie Whittaker.

As well as modern parts, she has played pale and interesting types in costume dramas including *Micawber* (2002), *Lilies* (2007), *South Riding* (2011), *Death Comes to Pemberley* (2013), *The Passing Bells* (2014) and as Emily Cratchit in *Dickensian* (2015/16).

Hennessy's films include *The Tichborne Claimant* (1999), *Dead End* (1999) and *The Violators* (2015).

She has reunited The Hayes Sisters in recent years to again sing and play banjo with her siblings. They released an album *Another Man's Shoes* in 2016.

Bill's foster mother Moira appeared in *Extremis*, having previously featured in *The Pilot* [2017 – see Volume 85] but 10 years before Hennessy had played Valerie Brannigan in *Gridlock* [2007 – see Volume 55].

Between these *Doctor Who* appearances, she was Helen Clarke in Russell T Davies' *Wizards vs Aliens* (2012/13). ■





THE PYRAMID AT THE END OF THE WORLD

➤ STORY 271

An ancient pyramid suddenly appears in a war zone. Inside are aliens that warn that the extinction of all life on Earth is imminent, but they offer salvation... at a price. The Doctor searches for the cause of the world's end, and Bill prepares to make a fateful deal.





Introduction

One famous constant that runs through the history of *Doctor Who*, is that his time machine is stuck in the shape of a police box. But perhaps this suits the Doctor who, after a fashion, polices time and space. When he made his own random suggestion, in *Logopolis* [1981 – see Volume 33], for an alternative disguise for the TARDIS he chose a pyramid. In *Pyramid at the End of the World*, Bill says, “A pyramid that just appeared out of thin air... that’s way beyond human technology, so it’s got to be an alien spaceship.” You could argue that it’s not in the Doctor’s nature to be inconspicuous.

The Pyramid at the End of the World is the third story in which the Doctor is, nominally at least, President of Earth – having been inducted as an emergency measure in *Dark Water/Death in Heaven* [2014 – see Volume 79]. Presumably, over time, the Doctor has come to the rescue of various world powers, which has resulted in this extraordinary scenario being acceptable to them. This is worth considering as, when he arrived to observe the pyramid in Turmezistan, he found himself in territory disputed by the United States, China and Russia.

The Doctor helped the president of the United States in *The Impossible Astronaut/Day of the Moon* [2011 – see Volume 66],

'THIS IS THE THIRD STORY
IN WHICH THE DOCTOR IS
PRESIDENT OF EARTH.'

and in one of the simulations run by the Monks in *Extremis* [see page 58] he even ended up kicking back in the Oval Office where he'd discovered the dead body of the current US President.

The Third Doctor, showing himself to be above the partisan nature of politics, claimed he was on good speaking terms with China's Chairman Mao, around the same time he was enjoying the company of the British civil service's Lord Rowlands at their gentlemen's club.

We have no onscreen evidence of the Doctor crossing paths with the Russian government. But assuming word didn't get back about the Doctor's activities in *The Curse of Fenric* [1989 – see Volume 46], the



Soviet administration presumably heard that he helped avert a nuclear conflict in *Cold War* [2013 – see Volume 73].

As much as the Doctor battles against becoming a part of the establishment, he is perhaps flattered by the attention. It eventually became clear that the incongruous pyramid was a diversion, and that he should have been looking elsewhere... ■

Above:
The Doctor is appointed President of Earth in *Dark Water/Death in Heaven*.

STORY

Bill is trying to explain to her date, Penny, about the Doctor and the Monks' simulation. They are interrupted when UN soldiers burst into Bill's flat. The Secretary General of the UN walks in, asking for the Doctor. He explains that a 5,000-year-old pyramid has appeared in Turmezistan. [1]

The Doctor is in the TARDIS when Bill tells him that the UN requires his presence in Turmezistan. The TARDIS is already inside a plane winging its way to the war zone.

Meanwhile, two scientists begin work at Agrofuel Research Operations. Erica has broken her reading glasses and Douglas has a hangover. [2]

The Doctor, Nardole and Bill are driven to see the mysterious pyramid. The Doctor tells Colonel Brabbit of the US army that he thinks the location was chosen deliberately as a provocation.

A Monk emerges from the pyramid and informs the Doctor that the Monks will soon be invited to take over the Earth. [3]

Douglas accidentally administers a high dose of enzyme to an experimental crop.

The Doctor uses the TARDIS to kidnap Ilya and Xiaolian, the Russian and Chinese commanding officers, and takes them to the UN meeting room. He suggests that China, Russia and the USA co-ordinate an attack on the pyramid as a show of unity. [4]

A bomber plane approaches the pyramid, but its crew is replaced by Monks. A beam of light lowers it to the ground and liberates the bomber's crew – plus the crew of a Russian submarine, followed by the submarine itself. [5]

The Monks announce that they are ready to talk and the Doctor, Nardole, Bill, Brabbit, Ilya, Xiaolian and the Secretary General enter the pyramid. A Monk leads them into a darkened chamber where several Monks are operating their simulation machine. [6]





They show the visitors a projection of the Earth in one year's time, entirely devoid of life. They explain that they can save the human race, but only if consent to dominion is given. The Secretary General tells the Monks he gives consent, but he is speaking out of fear and is reduced to dust.

Douglas and Erica watch as their experimental crop crumbles away. Erica realises they have created a bacteria that kills all life. It is too late for Douglas, who is infected and collapses and dies. [7]

The Doctor deduces that the imminent apocalypse will be the result of a mistake in a biochemical trial. There are 428 laboratories running such trials – but the Monks are only watching one of them. The Doctor gets Nardole to switch off the CCTV feeds of all 428 laboratories – and the Monks turn one of them back on, giving away the location! [8]

The Doctor lands the TARDIS in the Agrofuel laboratory. He sends Nardole back inside the TARDIS – where he coughs and loses consciousness... [9]

Bill is still at the pyramid site. The Doctor calls her with the good news that he thinks he can sterilise the laboratory by blowing it up.

Bill goes inside the pyramid in time to see Brabbit, Ilya and Xiaolian give consent for the Monks to save humanity and take over. But their consent is out of strategy, so they are all killed. [10]

The Doctor rigs the laboratory greenhouse to explode. His actions have saved the world, and there is no longer a need to accept the deal offered by the Monks. However, the greenhouse airlock has closed, and can only be opened by entering a combination code. The problem is, the Doctor is blind so he is unable to input the code. [11]

Bill asks the Monks to restore the Doctor's sight in return for her consent. As she is acting out of love, her consent is acceptable to them. [12]

The Doctor's sight is restored and he escapes from the greenhouse... but now the Monks rule the world!

THE PYRAMID AT THE END OF THE WORLD

▶ STORY 271



'THE DOCTOR JOINED THE
PARTY ENTERING THE PYRAMID.'

Pre-production

The Doctor, blind, is about to fight an enemy who can see more clearly than any he has ever encountered," commented lead writer Steven Moffat in a BBC video about *The Pyramid at the End of the World*, the second instalment in a trilogy of episodes pitting the Doctor against a new threat to Earth in the form of a group of mysterious Monks.

The story for the episode was developed by Peter Harness, who had joined *Doctor Who* with the 2014 episode *Kill the Moon* [2014 – see Volume 78] and then collaborated with Steven Moffat on the two-part Zygon narrative – *The Zygon Invasion/The Zygon Inversion* [2015 – see

Volume 82] – during 2015. Looking ahead to the next series, Harness was keen to develop a story in which the Doctor would be facing a threat which could quickly and efficiently wipe out all life on Earth.

Harness also wanted to comment on world affairs, and his concern about the US presidential campaign being waged since June 2015 by businessman Donald Trump. The controversial figure of Trump and some of his policies were acquiring strong pro and anti followings in the USA, fuelling Harness' idea for a story in which humanity would be willing to accept the rule of an alien species that apparently offered salvation to a current situation but which might be detrimental in the long

term. The writer developed a monstrous, dangerous menace which promoted itself in a potentially benign manner.

For his antagonists, Peter Harness devised a group of alien monks, each of which looked like a corpse, an image inspired by mummified remains discovered in Siberia and similar corpses found preserved in catacombs. He felt that this would be an effective look for an alien. Discussing the Monks with Steven Moffat, it was felt that they could form an ongoing threat to the Doctor and Earth across two or three episodes mid-series.

Originally referred to as 'kung fu monks' because it was planned that they would exhibit martial arts mastery, the Monks were conceived as extra-dimensional blackmailers, beings existing outside the normal universe who were able to trace notable peaks of probability leading to disaster by comparing numerous parallel universes. Consequently, they could see weak points allowing entry to the universe where they could operate a protection

racket, building confidence in a 'doomed' civilisation that their services were needed to save an 'endangered' planet, misdirecting from their true threat. Researching near-catastrophies in recent history, Peter Harness considered incidents such as the Black Brant scare in January 1995 when a scientific rocket launched from Norway by US and Norwegian scientists had been mistaken for a Trident missile by the Russian defence forces, leading to a potential retaliatory nuclear strike on the United States. There was also the

incident in September 1983 when the Soviet Union's early warning system had erroneously identified a multiple launch of ballistic missiles from the USA, where events could have escalated into nuclear war.

Seeking a potential global catastrophe caused by humanity which was not connected to war or politics, Harness read about *Klebsiella planticola*. This genetically engineered soil bacteria developed in the early 1990s by a European biotech company would destroy crop residue safely by turning vegetation roots into ethanol. However, the bacteria had only been tested in sterile soil; its effects would actually be stronger than predicted. Dr Elaine Ingham of Oregon State University revealed the threat posed by the bacteria and consequently the planned field tests were aborted; the bacteria could have

Connections: Incharge

► The Doctor resumes his role as President of Earth which he had been granted in *Dark Water/Death in Heaven* [2014 - see Volume 79] and adopted again at another time of crisis in *The Zygon Invasion/The Zygon Inversion* [2015 - see Volume 82]. The post comes - as usual - with a presidential plane, two

of these having been destroyed previously.



destroyed all vegetation on Earth. This gave the writer the global peril which the Monks would offer to avert. The company inadvertently manufacturing the world's fate would be Global Chemicals, the corporation featured in *The Green Death* [1973 – see Volume 20] whose petrochemical by-products caused horrific animal mutations. The lethal form of planticola would be referred to as DN8; the chemical compound DN6 featured in *Planet of Giants* [1964 – see Volume 3] had been an insecticide which had turned out to be more potent than expected, and had the potential to kill all insect life on Earth.

Harness' original story idea concerned humanity's first contact with the Monks, an incident requiring UNIT to work – as in the Zygon story – with the Doctor in his capacity of President of the World. The Doctor would be reunited with Kate

Stewart, the UNIT scientific advisor introduced in *The Power of Three* [2012 – see Volume 71] and seen in subsequent episodes, most recently in the Zygon two-parter. The story concluded with Bill being offered the choice to accept the Monks and giving them control of the Earth; a Monk then leapt on her back and vaporised her away... a situation which would be developed in the next episode.

Harness started to draft his episode, scheduled as the seventh of the 2017 series, early in 2016 before many of the other scripts for the 2017 series were available. During June, he was informed that Matt Lucas' availability to appear in the series as the Doctor's valet, Nardole, would be more than originally expected. Briefed about the returning character, Harness discovered that Nardole was rather fun to write.

Blinded

By August, it had been decided that – following a cliffhanger suggested by Jamie Mathieson for the end of his script for the fifth episode of the series, *Oxygen* [2017 – see page 6] – the Doctor would be blinded for a few episodes, spanning the sixth and seventh episodes by Steven Moffat and Peter Harness. The resolution of the Doctor's blindness fuelled a new end for the seventh episode, his cure the price for Bill allowing the Monks world control. Consequently, the Doctor's sight would be restored for the following episode, *The Lie of the Land* [2017 – see Volume 88] by Toby Whithouse, which showed the world ruled by the Monks. After completing the Christmas Special,

Connections: Orange

▶ Bill's comments that she would not have voted for the president because he was orange was a reference to US President Donald Trump, who had been elected to office in early November 2016 and whose tanned complexion had been noted by the press.



Left: Douglas and Erica are the unwitting architects of the end of all life on Earth.



THE PYRAMID AT THE END OF THE WORLD

STORY



Above: International differences are forgotten when a pyramid appears from nowhere.

The Return of Doctor Mysterio [2016 – see Volume 85], Moffat would then write the sixth episode, *Extremis*, as a prelude, establishing the Monks.

Dated Thursday 22 September 2016, Draft One of Harness' script was entitled *First Contact* (number 122) and scheduled for Shooting Block 5. This script was substantially different to the broadcast version, opening in a Moroccan town where one night at 3.15am an 11-year-old boy called Hassan suddenly got out of bed, fetched a sledgehammer from a workshop and started to smash the kitchen wall... as did other nearby children. With darkened eyes, the children moved like sleepwalkers, each carrying a loosened brick. At 4.22am, US Colonel Donald Brabbit was woken at the local UN peacekeeping base by Leona, his chief of staff. Sentries at the desert station watched the children approach with their bricks, forming a perfect square around the base. At the university, at

9.05am the Doctor was amazed that Bill had never been to another country due to her fear of flying. Although he planned to take Bill to Norway in the TARDIS, when they entered the ship they were confronted by UNIT soldiers led by Kate Stewart who told them about a developing situation in the Middle East; consequently, the Doctor needed to become President of the world... to Bill's amazement as the pre-credits ended.

The TARDIS materialised outside Hassan's house at 9.10am to find the children demolishing walls and collecting bricks. The youngsters had built a pyramid in the desert between the UN base and the town which the Doctor, Bill, Kate and Nardole surveyed from a UNIT helicopter; Kate explained that the Osgoods were busy sorting out a Zygon in the Republican Party. At the base, the Doctor met Brabbit plus the Russian Ilya, and Captain Ding Xiaolian of the Chinese Revolutionary

Army; he recalled a legend about a pyramid at the end of the world which appeared from nowhere and signified an end time. With the pyramid finished, the children returned to normal... pointed out by Nardole to the blind Doctor. Hassan placed the final brick, the sky ripped open and a shaft of light struck the pyramid, with all the phones suddenly ringing and reading 11.50pm: the Armageddon Clock. The script noted 'a quick montage of all the different clocks we've seen so far, as well as a few more famous ones, like Big Ben, the clocks on rolling news channels, moving swiftly forward until they all read 11.50pm'.

Meanwhile at a Global Chemicals processing plant, boxes of vials were being readied. Erica, 'a truck driver in her early thirties,' left her Idaho home for work - driving a Global Chemicals HGV - but dropped and broke her phone when startled by her daughter, Em. In the desert, Brabbit found that the pyramid was protected by a force shield. The Doctor asked Kate about potential danger areas in the world, and Hassan was the only child who still had black, empty eyes. Russian, Chinese and American authorities decided

to attack, but the bomber piloted by US Major Pychoviack was intercepted by the beam of light; her co-pilot was replaced by a Monk: 'Not your normal mead-sipping, dress-wearing, baldy kind of Monk. This is a mummified, dead-looking thing. Yellowy-brown, eyeless. Wasted muscles hanging off its limbs. Bone poking through the skin. Bound in rags. Crabbed, hideous. Tremendously old. Features worn down by the years. Dusty over.'

Inside the pyramid

At Global Chemicals, the tired Douglas ('a young lab technician') entered the wrong value in the chemical mixture DN8. At the pyramid, the bomber landed and all the guns floated out of the soldiers' hands. The Monks spoke through Hassan, saying that they were here to save everyone and would deal with the representatives of "Power Bloc One". While Erica drove her truck, Douglas accidentally cracked a vial, throwing it in the bin. In the desert, Brabbit, Ilya and Xiaolian donned Kevlar armour to enter the pyramid. "Of course it's a trap, it could hardly be more obvious," fumed the Doctor to Bill continuing in reference to the 1983 *Star Wars* film *Return of the Jedi*, "Not if there was a fifty foot inflatable Admiral Akbar wobbling about outside... he's from *Star Trek* or something, I was just trying to be hip." Inside the pyramid, Hassan informed the Doctor's party that humanity was about to wipe itself out. Entering a chamber, the party found Monks 'plucking at threads, which pulse and move through the air. Like a giant, living web, always moving,

Left:
The Doctor ventures inside the pyramid.



Connections: Taxi!

▶ When Penny's date with Bill is wrecked by UN intervention, she gets an Uber, a car for hire which could be booked via the Uber app software launched in Bristol in July 2015.





'THE SECRETARY GENERAL INTRODUCED
BILL TO BRABBIT AS "SPECIAL
ASSISTANT TO THE DOCTOR".'

THE PYRAMID AT THE END OF THE WORLD

glistening, stopping, starting, running on. It's a living model of possibilities and probabilities.' Hassan explained that the Monks could stop the catastrophe, but in return needed to be *given* this world: "This planet will be ours. And will always have been." In Idaho, Erica made her delayed pick-up while the vial leaked...

"I'm the one who does the saving round here," the Doctor told the Monks/Hassan, "And I don't ask anything in return. Apart from the occasional big plane and some biscuits." With the clocks at three minutes to midnight, the group left the pyramid. In the military transport leaving the structure, the Doctor told the military that the Monks modelled space-time events, holding worlds to ransom at weak points in their history and playing on people's desperation to make them sign over their planet. To check the threat's veracity, the Doctor took the party back to the TARDIS and travelled forward to the lifeless, barren world of 2018. Inside the TARDIS, the Doctor determined that the threat had to be something unpredictable, ruling out comets, volcanoes and earthquakes. When Kate pondered a terrorist attack, Nardole suggested bacteria. At the UN base, the group checked chemical and biological weapons centres, focusing on "first exposure" tests with considerable funds behind them... then correlating these against minor mishaps like broken phones, traffic accidents and sickness, narrowing the field to six potential places. The Doctor and Nardole departed to model events in the TARDIS, leaving Bill at the base.

At Global Chemicals, the DN8 spillage was noted by a worker... who was soon convulsing, his face blackening. In the TARDIS, the Doctor created his own screen of threats as Nardole discussed the Doctor's "first contact" since his "indisposition". As the countdown moved

Right:

Time is running out for the Doctor to save the world.



to 11.59, the Doctor isolated the danger and the TARDIS materialised at the locked-down GCHQ. A Monk watched the military at the UN base as Bill discussed how the Doctor tended to help UNIT on an annual basis. Kate explained she knew the Doctor "since I was about five or six. He came with my father to pick me up from school once. He used to have a big yellow car. And a big grey bouffant [...] You know he can *change*, don't you?" The Doctor contacted the base about the experimental crop dusting chemical DN8 made in Idaho by Global Chemicals; Douglas' misplaced decimal point meant it now suffocated all living things. The Doctor and Nardole recalled all the batches, but could not contact one driver - Erica - by phone. The TARDIS appeared as Erica reached a wheatfield and activated the dispersal unit. As the clock moved to 11.59.30, Brabbit decided to make the deal with the Monks. Back at Global Chemicals in the truck, the Doctor battled to shut down Erica's unit, but the vital code had



been on her phone; with no alternative, he planned to carry the dispersal unit into a sealed lab which could then be sterilised. As the party entered the pyramid, Ilya and Xiaolian told the Doctor that the visitors had come before at the time of the Cuban Missile Crisis and the 1983 false alarm. The Doctor insisted that this was a false influence being exerted by the Monks. When Brabbit confronted the Monks, one of them grabbed his face and kissed him, sucking the life out of him to leave 'a bloodless, mummified corpse'.

Final version

The Doctor got inside the airlock in the lab but lost his sonic shades, leaving him blind as the clock reached 11.59.59. Hassan had not recognised Brabbit as the representative of Power Bloc One, with Ilya and Xiaolian meeting the same fate; the boy declared that only the Doctor could make the deal. Inside the lab, the Doctor ordered Erica to start

the sterilisation protocols... and the clocks went back, with Hassan being released. However, the Doctor could not see to key in the code to clear the emergency protocol. The resolution on Bill's phone was not good enough for her to help the Doctor with the colour-coded buttons, and he finally admitted that he was blind. With 15 seconds left, Bill asked the Monks if they could restore the Doctor's sight... his vision restored, the Doctor keyed the code, stumbling from the airlock and shouting at Bill: "YOU DON'T KNOW WHAT YOU'VE DONE!" In the darkness, Bill looked at the Monk: 'The MONK's face cracks a little. The mouth opens. A puckered, dark little hole. Opening wider and wider... Bill stiffens. Her mouth opens wide, wider than naturally possible. Her eyes roll back white into her skull. Move into the blackness of her mouth.'

During September and October, Steven Moffat worked on *Extremis*; some elements of his story would be grafted into the final version of Peter Harness' script. Kate Stewart was replaced by UNIT's Colonel Walsh who featured in *The Zygon Invasion*/*The Zygon Inversion* because in December 2015 it had been announced that Jemma

Below:
The Monks
reject strategic
consent.



Connections: Guitar man

► The Doctor plays his guitar which had been introduced in *The Magician's Apprentice*/*The Witch's Familiar* [2015 – see Volume 80] and appeared in subsequent stories such as *Under the Lake*/*Before the Flood* [2015 – see Volume 81], *Hell Bent* [2015 – see Volume 84] and *The Pilot* [2017 – see Volume 85].



Redgrave – who played Kate – was joining BBC One's *Holby City* as surgeon Bernie Wolfe and her initial six-month booking had been extended into 2017. Meanwhile, pre-production on Block 5 was underway with Peter Bennett and Daniel Nettheim as producer and director.

In Draft Two of *First Contact* (number 122) – dated Thursday 20 October – the story opened in a scene of conflict at the desert town where Ilya was present directing his Russian commandos and watched

from an upper window by Hassan. At the UN base, Don Brabbit told Leona that he hoped the ceasefire would last. However, Russians, Chinese and local forces were mobilised with arms... then the base alarm sounded. The first figure in No Man's Land was Hassan – to the astonishment of Ilya, his second-in-command Oleg and Captain Ding Xiaolan aboard her tank. As the situation escalated, the Russians and Chinese closed in on Hassan... when suddenly the sands shifted and a pyramid ('blank, shining dull red') appeared, concluding the pre-credits.

The story moved to 'a normal-looking semi in a village somewhere in northern England' with Erica's glasses accidentally broken by her daughter, Livvie, as she left for work. Entering the TARDIS to go to Norway, the Doctor, Bill and Nardole were confronted by 'Colonel Walsh... late of Turmesistan [sic]' who informed them that an alien pyramid had appeared at the armed flashpoint between Russia, China and the US. Erica now worked with the tired Douglas in the greenhouse at Global Chemicals where she was observed by 'a

thin, crabbed, sinister figure in ripped robes'. The TARDIS travelled to the US base where the Doctor met Colonel Donald Diggory Brabbit and watched both US and Russian forces testing the pyramid's defences. The helicopter material and dialogue about the Osgoods was omitted.

As the clocks went to 11.50pm, the Doctor drove a UNIT jeep across the desert with Bill and Nardole to reach the local town where they confronted Ilya and Oleg (whose dialogue was translated in subtitles) and then located the Chinese forces; Brabbit, Xiaolian and Ilya assembled at the US base as time moved onto 11.55pm. While the commanders called their respective governments, the Doctor and Nardole enjoyed tea and biscuits and discussed the Doctor's "first contact" before Major Pychoviack's bomber was brought down by the light beam. The black-eyed Hassan appeared before the pyramid as a conduit for the Monks asking to speak to Power Bloc One. At Global, Douglas complained about his packed lunch of boiled eggs (referencing a similar sequence in *Terror of the Autons* [1971 – see Volume 16]) when Erica spotted a Monk on the CCTV.

Right:

Xiaolian leads the Chinese forces in Turmezistan.





Above:
The Monks
predict the
future of Earth.

The Doctor's party was led inside the pyramid by Hassan; 'It's intensely dark, and there don't seem to be any walls. They seem to have entered another dimension, another space. The floor beneath their feet seems almost liquid.' They now took hold of the glowing threads being manipulated by the Monks and saw the devastation of the world in 2018 as the clock reached 11.57pm. Erica and Douglas found the plants in the greenhouse dying while at the US base, the Doctor attempted to isolate potential threats to the world and forced the military leaders to stop fighting. The Doctor collected all the top-secret documents in a searchable form while Douglas collapsed and died: 'frothing at the mouth... His face blackens. His airways are constricting.' The Doctor now focused on GM bacteria work and assimilated online comments about accidents which he could model in the TARDIS. Erica informed her boss Terry that she had initiated lockdown. At the US base, Walsh explained to Bill that the Doctor usually helped UNIT twice a year: "As far as I remember, this is First Contact

number 122." Walsh also commented of the Doctor: "Met him a couple of years ago when he was like this. And I saw him one or two years before that. When he looked about 28."

Nightmare situation

In the TARDIS, the Doctor connected an ambulance call, Erica's broken glasses and Douglas' drunken night to arrive at Global in East Yorkshire and met Erica, tackling the modified planticola bacteria by defusing the dispersal device in the machine room. The military and Bill returned to the pyramid to parlay; a Monk pulled a thread from Brabbit's midriff into its hand and drained the life from him: 'his skin suddenly deflates more or less totally, rippling like a plastic bag.' The Doctor's sonic specs were crushed in the airlock at 11.59.59 as he realised that fire would sterilise the DN8; he activated the greenhouse incendiary device, but could not open the airlock door to escape.

Moffat refined *Extremis* into November, but was soon facing a nightmare situation

THE PYRAMID AT THE END OF THE WORLD

as the readthrough dates for Block 5 – *Extremis* and *First Contact* (number 122) – loomed. “It was at the time my mum fell acutely ill,” he explained to Benjamin Cook in *Doctor Who Magazine*, “so I had no time to do what I would normally have done, which is sit down with Peter, have meetings with him, do big, long emails about the script.”

Misdirection

The issue was that Moffat now needed numerous elements of *First Contact* (number 122) reworking to connect better with *Extremis*; his only option was performing the revisions himself. “I’d barely got [*Extremis*] in shape, so I just

had to take the script for [*First Contact* (number 122)], sit in the hospital next to my mum’s bed, and type. That’s all I could do. It’s as grim as all that,” he recalled, adding of his fellow writer, “Peter deserved better from me frankly.” In the revisions, UNIT was omitted, and Moffat located the pyramid in Turmezistan (referred to as ‘Turmeszistan’) previously seen in *The Zygon Invasion*/*The Zygon Inversion*.

First Contact (number 122) was renamed *The Pyramid at the End of the World* when ‘Chunk 1’ of Draft Three circulated on Thursday 17 November. This opened with defined flashbacks to *Extremis*, introducing Penny and Bill’s date with the arrival of the UN commander and Secretary General (‘a slim East Asian man in an

Right:

The Monks can save the Earth.

Connections: Nearly midnight

► The Doctor explains about the Doomsday Clock, a symbol designed to represent the likelihood of a global catastrophe being caused by humanity, maintained since 1947 by the Science and Security Board of the academic journal *Bulletin of the Atomic Scientists*. In January 2015, it had been reset from 11.55pm to 11.57pm because of concern about the lack of action to address climate change, and in January 2017 it was moved to 11.57.30pm because of concerns

over international attitudes to nuclear testing.



expensive suit. Compact, polite, powerful”) to explain the sudden appearance of the 5,000-year-old pyramid. In Bill’s kitchen, she and Penny were ‘sitting close, flirtatious – almost exactly the same as last week’. The Secretary General introduced Bill to Brabbit as “Special Assistant to the Doctor”. After the pre-credits, the Doctor was meditating in the TARDIS (‘in low light mode’) before the zoom in on Earth to show Erica and Livvie. Of the Doctor’s vision, this was described as ‘a wire frame version of the TARDIS. It’s just a fraction better than last time, and now both the Doctor’s voice and Bill’s appear as sonic waves across the bottom of the pictures.’ When Nardole said that UNIT wanted to talk to him about the events in Turmezistan, the Doctor told him to explain that he was dead... but emerged from his ship to find himself in ‘the Doctor’s office on the presidential plane’. This first section ended with Erica’s arrival at Global Chemicals.

The complete Draft Three – closer in structure to the finished episode – was still credited solely to Peter Harness when issued on Monday 21 November.



The Secretary General was now female. In the new material, the Monks were now monitoring Erica in the Global greenhouse via CCTV, and Nardole guided the Doctor by speaking into his duffle coat toggle (as in *The Return of Doctor Mystero*). When the Doctor approached the pyramid, a Monk emerged ('the same one as confronted the simulated Doctor in *Extremis*'); Hassan was eliminated as the aliens' communications channel. The clocks were set to 11.50pm and Ilya was receiving a report from an officer in his command tent when the TARDIS materialised around him, with Xiaolian already on board. At the UN base, the Doctor explained that the best time for aliens to attack Earth was when Earth

was already attacking itself. As the commanders called their governments, Nardole told the Doctor to follow Bill outside and admit his blindness, when suddenly the burst of light from the pyramid captured Pychoviack's bomber; the Russian submarine was now added before a holographic image of the 'terrible, skull face' of a

Monk appeared above the pyramid, asking to communicate with Power Bloc One. The Doctor joined the party entering the pyramid; inside they were projected into the desolate 2018 vision with bodies and wreckage around them. The party returned to the base where the Doctor

discussed the Monks' technique of misdirection. As they searched the documents for potential disasters, the Secretary General told the Doctor that Kate Stewart and Osgood were co-ordinating from Geneva. "Oh, it's always *Geneva*!" fumed the Doctor as the clocks reached 11.58.30 and a Monk appeared at the door, watching them. The Doctor suddenly realised that he and Nardole could blind the Monks and made for the TARDIS. Checking the UNIT watch list of labs, the Doctor had Nardole switch them off, isolating GCHQ. The Doctor and Erica then handled the potential DN8 disaster as before, while Donald Diggory Brabbit, Ilya and Ding Xiaolian met their fates, leaving the Secretary General and Bill as representatives of Power

Connections: Out of nowhere

► The TARDIS

materialises around Ilya as seen in previous episodes such as *Bad Wolf/The Parting of the Ways* [2005 - see Volume 50], *Blink* [2007 - see Volume 56] and *Knock Knock* [2017 - see Volume 86].



Left:

The Secretary General and Ilya are offered a deal to save the planet.



Bloc One. The Doctor told Bill that he was blinded on Chasm Forge [in *Oxygen*], and the episode concluded with Bill telling the Doctor that as she had just saved his life, he now needed to get her her planet back.

The Block 5 readthrough was held at 7pm on Monday 21 November, with the cast assembling at room GF 68+69 at Roath Lock. Peter Capaldi was very impressed with the contemporary edge of the script feeling that it dealt with current global threats.

Japanese actor Togo Igawa was cast as the Secretary General, having appeared in the *Cyberwoman* episode of the spin-off series *Torchwood* in 2006 and providing voices for shows such as *Robotboy* and *Thomas the Tank Engine & Friends* as well as appearing in programmes such as *Street Fighter: Assassin's Fist*. Playing the UN Commander was Nigel Hastings whose television career included *A Bit of a Do* (and recording the Big Finish *Doctor Who* audio *Creatures of Beauty* in March 2003) while Baltimore-born Eben Young was cast as Colonel Don Brabbit. Rachel Denning, cast as Erica, was very excited to be in *Doctor Who*, particularly when she realised that she would be performing numerous scenes with writer/actor Tony Gardner as Douglas; she remembered him as the alien Brian Johnson from the CITV series *My Parents Are Aliens* since when he had also featured in series such as *Lead Balloon*, *Fresh Meat*, *Bluestone 42* and *Last Tango in Halifax* and worked with Peter Capaldi on *The Thick of It*. Gardner had featured in the *Doctor Who* audio drama *The Wrong Doctors* recorded in May 2012. Andrew Byron played Ilya while Xiaolian was Daphne Cheung, a British-Chinese actor who had appeared in CBBC's *Spirit Warriors*. As in *Extremis*, Penny was played by Ronke Adekoluejo.

In the shooting script issued on Tuesday 22 November, the Secretary General's gender reverted to male and Erica's glasses were broken by her husband. Journalists clustered at the perimeter by the pyramid and Ilya was kidnapped from outside his base in a field. The Doctor prepared to tell Bill about his blindness in a base anteroom and the pyramid interior description was changed to have different areas like the thread chamber and monitoring chamber. A chronology was added, with the new narrative starting in the student bar on Night 1 at 02.30 before the young women walked to Bill's at 03.00. The UN arrived at 03.15, with the car journey at 03.45. In the desert, Brabbit looked at the

Right:

Xiaolian will not survive her encounter with the Monks.





pyramid at 06.46 on Day 2. The Doctor meditated in the TARDIS at 08.10 while Erica left home. The Doctor emerged into his presidential plane at 08.16 while Erica arrived at Global Chemicals at 08.54 and was watched at 09.01. The Doctor studied the pyramid at 09.30 and faced the Monk at 09.33. When the clocks were set, time became meaningless, with the scenes defined as 23.50, 23.55, 23.57, 23.58, 23.58.30, 23.59.10, 23.59.30, 23.59.50 and 23.59.59. Normal time was restored at 15.00 with Bill making her fateful deal at 15.03.

Executive decision

The first few days of Block 5 focused exclusively on *Extremis*. Pink script revisions for *The Pyramid at the End of the World* were issued on Monday 28 November. Global Chemicals became Agrofuel Research Operations due to there being a real-life organisation called Global Chemicals; ‘agrofuel’ was a term for any biofuel produced by agricultural means. There were now more details

about the airlock system, as well as an emphasis on Douglas’ drunken night out. When the clocks were set, the time was now 23.57 rather than 23.50, and the Doctor’s account of the Doomsday Clock was added. The dialogue between Erica and Douglas about the egg lunch was dropped in favour of Erica telling her ailing colleague to take the afternoon off. “You think Marie Curie ‘took the afternoon off’?” he retorted in reference to the Polish-born physicist who conducted pioneering research into radioactivity from the end of the nineteenth century. The sequence where the group found itself in 2018 was omitted and replaced by a visual montage. Dialogue debating the Monks’ offer as the group left the pyramid was dropped, and Douglas talked more about feeling sick. The military agreed to peace earlier on and the Monks no longer watched from the base door. Erica’s boss, Terry, was omitted and the Doctor insisted that Nardole remain in the TARDIS at Agrofuel where he was overcome by the toxin. When the hazmat-suited Erica asked the Doctor why he wasn’t dead, he replied with reference to the range of plant-care products: “An alien with a Scottish accent, it’ll take more than some jumped-up Baby Bio to hurt me.” The idea of the automated air filtration system was added with this draft to replace the dispersal mechanism. Brabbit, Ilya and Xiaolian died in the pyramid because their consent was not pure. Dialogue between Erica and the Doctor during the crisis was changed; when it seemed they were fated, she now told the Doctor that she had always wanted to be a bus driver because they waved at other bus drivers. The resolution using the four-digit code replaced the two coloured buttons, and Bill made an “executive decision” to keep the Doctor alive. ■

Left:

Erica assists the Doctor to bring the Earth back from the brink of disaster.



Production

The first recording on *The Pyramid at the End of the World* took place on Monday 28 November, the start of the week where Peter Capaldi had been released to work on *Paddington* 2, leaving the production to focus on Pearl Mackie. Work was scheduled for the standard studio hours of 7.30am to 7pm, commencing on the pub set which formed part of the Roath Lock area dedicated to the BBC One hospital drama *Casualty*;

this now became the student bar where Bill and Penny had their date. After this, the couple's date in *Extremis* was recorded. The revised version of Bill and Penny's date at the flat concluded with the arrival of the military, recorded on the standing *Pobol y Cwm* set first featured in *The Pilot* [2017 – see Volume 85]. After this, the unit spent the afternoon on West Bute Street in Cardiff – featured in many episodes since *Aliens of London/World War Three* [2005 – see Volume 49] recorded in



'THE CAST AND CREW FLEW OUT TO TENERIFE TO CONTINUE WORK WITH THE TURMEZISTAN EXTERIOR SEQUENCES.'

THE PYRAMID AT THE END OF THE WORLD

Connections: Peace song

► Brabbit suggests that they “give peace a chance”, citing the anti-war song written by John Lennon and released by the Plastic Ono Band in July 1969.



November 2004 – for the women walking back to Bill’s flat. Rachel Denning also attended for a costume fitting during the afternoon.

Blue revisions were issued on Wednesday 30 November. Erica’s arrival at the machine room airlock and other elements in this area were changed, and planticola was

now also referred to as Enzyme EC 31.

Work on *The Pyramid at the End of the World* resumed on Thursday 1 December, starting at 7.30am with Erica leaving home in her Ford Focus MkII recorded on Baldwins Crescent at Crymlyn Burrows, Swansea. The team then moved across the A483 to the premises of the Pilot Chemical Laboratory on the Bay Campus of Swansea University – home to the Energy Safety Research Institute – which would appear as the lab in which Erica and Douglas worked; Erica’s arrival and her sympathising with her hungover colleague were recorded, along with corresponding CCTV material monitored by the Monks. Conditions for recording were rather cold

Below:

The Doctor thinks Erica would make a good companion.



in the pre-Christmas chill with work at the venue completed shortly after 4pm. The evening was devoted to the Secretary General talking to Bill in the official Land Rover Range Rover Sport on some nearby roads; earlier in the day, Pearl Mackie had a costume fitting for later episodes.

Swansea University

Further script changes were made in green revisions on Friday 2 December. Nardole’s comments about UNIT needing the Doctor’s help were omitted and some of the dialogue as the Doctor ‘looked at’ the pyramid was changed. Previously, the Monks had made reference to encountering the Doctor’s simulation, but this was dropped along with dialogue about military tension which could trigger World War Three. Psychovlak became Jackson and other references to Psychovlak were now changed to an unspecified catalyst. All references to Power Bloc One were omitted, and



at the episode's climax the Secretary General insisted that Bill should escape with him before she gave her consent to save the Doctor.

The unit returned to Swansea University for recording from 7.30am to 6.30pm on Friday 2 December; since these scenes focused on Erica and Douglas, Pearl Mackie was not required. Stunt arranger Crispin Layfield supervised the scene where Douglas convulsed and died, and a second camera recorded shots tracing pipes throughout the lab. In the afternoon, the crew relocated to the greenhouse area, recording Erica adjusting the spray units and her realisation that the plants were dying, concluding Tony Gardner's scenes.

Yellow script amendments were issued on Sunday 4 December. After seeing the vision of the future, the Secretary General now vomited; deeply affected, he quickly agreed to give consent and was killed: 'His body glows, burns, explodes into ash.' The character was then omitted from the rest of the plot, his dialogue given

to characters including Brabbit or Bill. Bill compared the Monks to vampires, and the three members of the military died simultaneously when giving consent before the Monks turned to Bill alone; the Monks now recognised Bill's actions of love as her consent.

Work on *The Pyramid at the End of the World* continued on Monday 5 December where Peter Capaldi and Rachel Denning were the only cast members required at the Pilot Laboratory for recording from 7.30am to 5.30pm; Pearl Mackie now had a week off. The *Doctor Who* Interactive crew was on set as work began on the greenhouse and airlock scenes of the Doctor chatting to Erica and halting the clocks. Material with the Doctor trapped in the airlock was then recorded, with scenes of the Doctor building the trigger completed in the lab at the day's end.

Matt Lucas rejoined the *Doctor Who* team on Tuesday 6 when recording at the Pilot Laboratory was due to conclude with work from 8.30am to 6.30pm. Most of the lab sequences were completed first, including the only Nardole scene and when the Doctor, delighted with Erica,

Left:

Peter Capaldi performs his meeting with the Monk at the pyramid entrance.

Below:

Bill and Nardole see the future.



THE PYRAMID AT THE END OF THE WORLD



Above:
The cameras roll inside the pyramid.

declared, “By George, she’s got it!” – an ad-lib from Peter Capaldi relating to Alan Jay Lerner’s 1956 musical *My Fair Lady* (in turn based on George Bernard Shaw’s 1913 play *Pygmalion*). Erica’s arrival at

work via the machine room was recorded along with the shots of the evacuation and the police box’s arrival using the 2013 prop. The lab and airlock scenes of the Doctor and Erica dealing with the catastrophic situation were recorded to the end of the day, duplicating some of the previous day’s work from alternative angles. A second camera also captured background plates for several scenes during the day. Recording on Wednesday 7 saw the resumption of work on *Extremis* which was the focus for the rest of the week and Eben Young attended a fitting session as Brabbit.

The following weekend, on Sunday 11 December, Peter Capaldi recorded an interview promoting *The Return of Doctor Mysterio* with Sophie Raworth for inclusion in BBC One’s *The Andrew Marr Show* and undertook more location work in London for *Paddington 2* during which he met up with his former *Doctor Who* co-star Jenna Coleman. The cast and crew then flew out to Tenerife (previously visited for *The Magician’s Apprentice/The Witch’s Familiar* [2015 – see Volume 80]) later that day to continue work with the Turmezistan exterior sequences. The BBC Cymru team worked alongside Sur Films which had recently collaborated on the Spanish shoot for *Smile* [2017 – see Volume 86] in July and before that had arranged locations in the Canary Islands for episodes such as *Kill the Moon*, *The Zygon Invasion/The Zygon Inversion* and *Hell Bent* [2015 – see Volume 84].

Monday 12 December saw the BBC *Doctor Who* website inviting fans to submit Twitter questions using the tag #AskPeterCapaldi which they could ask the

Connections: UNIT

► The Doctor refers to UNIT, an organisation that he had collaborated with on a periodic basis since their formation shortly before the events of *The Invasion* [1968 – see Volume 13], serving as the group’s scientific advisor from *Spearhead from Space* [1970 – see Volume 15] and most recently collaborating with them in *The Zygon Invasion/The Zygon Inversion* [2015 – see Volume 82].



show's star on Wednesday 14. By now, the BBC Cymru team was based at the Meliá Jardines del Teide in Costa Adeje on Tenerife and ready to record for the day at the Hospital Militar de Abades, a sanatorium – the Sanatorio de Abona – near the village of Abades; this had originally been constructed to treat leprosy and never finished and then used as a military training facility since the 1960s. Cast and crew were warned to wear plenty of sun block and sturdy footwear. Between 7.30am and 6pm, the Doctor's approach to the pyramid and meeting with the Monk was recorded first, along with the activation of the Doomsday Clock and the return of the armed party to the structure. The unit then moved to record the surrounding material with Bill, Nardole and the UN forces watching the Doctor from a distance. Canary Picture Vehicles provided the six military cars required including a Land Rover Defender 110 Station Wagon and a Mitsubishi Pajero, while the 2011 police box prop of the TARDIS was used

during the week. The *Doctor Who* Interactive team was present to record an item during the day with Pearl Mackie, and Steve Painter of Millennium FX handled the prosthetics worn by Jamie Hill as the Monk.

Work at the same venue was scheduled for 7.30am to 6pm on Tuesday 13, starting with the onlookers witnessing the arrival of the bomber and the submarine. Peter Capaldi and Matt Lucas needed to be cleared by 11.30am so that they could return to London for the BFI preview screening of *The Return of Doctor Mysterio* the following evening; consequently the material of the group getting into the vehicle was prioritised next. After this, aerial shots of the UN convoy on the dirt road were recorded using a drone camera from Air Media 360 for the rest of the day along with the UN establishing the cordon around the area; local supporting artistes doubled Capaldi and Lucas in some of these shots, and Cliff Wallace of Millennium FX attending to the prosthetics of locals playing the other two Monks.

Connections: Organ shopping

▶ The Doctor comments that he got Nardole's lungs cheaply, again referring to his re-assembly after his decapitation in *The Husbands of River Song* [2015 – see Volume 84] as seen in *The Return of Doctor Mysterio* [2016 – see Volume 85] and *Thin Ice* [2017 – see Volume 86].



Left:
Pearl Mackie stands by for her close-up.



Christmas party

Recording from 7.30am to 6pm on Wednesday 14 was again planned for the disused military area, with the local doubles needed for the Doctor and Nardole. Brabbit talking to the Secretary General was recorded first, followed by later scenes as Brabbit and the other military leaders set off to make their deal. Shots of the sub and bomber crews emerging from the pyramid were recorded, along with a shot of the door

closing behind the Doctor's party. Back in London, Peter Capaldi undertook his live Twitter Q&A from 3.45pm and then joined Greg James on his Radio 1 show and Samira Ahmed of Radio 4's *Front Row* to promote the Christmas Special. Talking on Radio 1, Capaldi explained that he had just returned from Tenerife the previous evening, observing that because the unit had been based at a holiday hotel he had been confused as to whether he had been on holiday or not. Meanwhile Daniel Nettheim tweeted shots of the TARDIS on location and the unit base.

Work on Block 5 came to a temporary halt for Christmas with the fourth day in Tenerife on Thursday 15 December, scheduled at the Hospital Militar from 7.30am to 5pm. Shots of the town seen in 'Doctor Vision' were scheduled first, along with inserts at the barrier, and then the TARDIS collecting Ilya from the Russian field base. During the shoot, Daphne Cheung was forced to miss her teenage daughter's birthday, so Peter Capaldi had recorded a special birthday greeting for the pair of them from the set. Establishing shots of the UN base with the team getting into the vehicles were also recorded, along with the visual effects shot of the bomber falling from the sky. Work finished early at 2.15pm with the cast and crew undertaking the viral craze of the mannequin challenge, and returning to the UK the following morning. Despite the heat, camera operator Mark McQuoid organised a Christmas jumper party... at which Pearl Mackie was one of the few to don festive garb. Meanwhile, Matt Lucas promoted *The Return of Doctor Mysterio* on BBC One's *The One Show* that evening. With production shut down for a fortnight, most of the cast and crew were able to enjoy the festive season with their families. It was during this period

that Steven Moffat's mother passed away, peacefully in her sleep.

As work resumed in 2017, on Tuesday 3 January a set of purple rewrites were issued. The Doctor was now playing on his guitar during the first scene in the TARDIS and his dialogue with Bill as they entered the pyramid was altered. The need for the Monks to have consent was emphasised in the scene where the Secretary General died.

Pyramid game

Aith the pyramid sets built in Studio 1 at Roath Lock, work on the episode resumed with recording from 8.30am to 8pm on Wednesday 4 January. The Monks watching Erica and the Doctor in the monitoring chamber were recorded first with Jamie Hill, now joined by other Monks sporting prosthetics applied by

Right:
It's the morning after for Douglas.





Above:
The cameras capture the Doctor's glimpse into the future.

the Millennium FX team of Becca Smith, Francesca Bernardelle, Rhiannon Morrell and Laura Howard. Following a costume fitting, Peter Capaldi joined Pearl Mackie and Matt Lucas for the group making its way into the pyramid and being shown the future in the thread chamber. As with *The Zygon Invasion/The Zygon Inversion*, Capaldi ad-libbed the Doctor's gameshow host patter, thanking the Monks for playing "the Big Pyramid Game" and saying he'd see them again next week; *The Pyramid Game* had been an ITV game show adapted from the US show *The \$10,000 Pyramid* which had debuted in 1978 as part of *Bruce Forsyth's Big Night* and become part of LWT and then TVS' line-up from 1981 to 1990 before its brief revival in 2007 by Challenge.

With editing underway on the episode, a salmon revision to the shooting script was issued on Thursday 5 January; this made cuts to some recorded material as well as revisions to dialogue still to be recorded. Much of the dialogue about the Doctor from the Secretary General to Bill in the car was reduced and her

introduction to Brabbitt omitted, along with comments about America, China and Russia being on "disputed territory". Other dialogue changes were made throughout, including the omission of the Marie Curie comparison, and the Doctor scorning Brabbitt that invading aliens did not announce their plans on Twitter. Brabbitt's references to Kate and Osgood being in Geneva were dropped as was the Doctor's flirty introduction to Erica and a scene outside the pyramid where Brabbitt told the Monks that he was here to make a deal.

Recording in Studio 1 continued from 8am to 7.30pm on Thursday 5, starting with the completion of the Doctor telling the military representatives not to accept the deal and then continuing with Bill in the entrance chamber learning about the Doctor's blindness.

Work from 7.30am to 7pm on Friday 6 January completed Bill giving the Monks her consent to save the Doctor, after which the team moved to the UN base sets in Studio 2. The Doctor addressing the military about their combined strikes

THE PYRAMID AT THE END OF THE WORLD

▶ STORY 271



Above:
Erica tends to
the garden.

was recorded along with the Doctor about to admit his blindness to Bill in the anteroom. Work on these sets was also scheduled from 7.30am to 7pm on Saturday 7, starting with greenscreen shots of the Doctor looking out at the pyramid and then continuing with the Doctor initiating peace and attempting to narrow down the search for the potential catastrophe. Recording ran smoothly, completing by 6.40pm.

After the one-day weekend, recording commenced at 7.30am on Monday 9 aboard the Doctor's plane, constructed in Studio 3. Peter Capaldi was then released by noon, leaving Pearl Mackie and Matt Lucas to work on *Extremis*. After dark, a second camera recorded the new shortened material with the Secretary General's car, this time on Roath Lock's backlot.

Recording on Tuesday 10 began with material for *Extremis*, after which Peter Capaldi and Pearl Mackie performed the early TARDIS scenes for *The Pyramid at*

the End of the World on the standing set in Studio 4 before moving onto the sequence of Ilya finding himself inside the vessel... completing work for Togo Igawa, Andrew Byron and Daphne Cheung.

Nardole's collapse

Wednesday 11 January began back on the TARDIS set with Peter Capaldi and Matt Lucas recording the Doctor and Nardole isolating the crisis area, after which Capaldi departed for a costume change to work on *Extremis* while Lucas performed Nardole's collapse. A second camera then recorded inserts for both episodes on Friday 13, working with Pearl Mackie in Studio 4 to capture shots of the iPad studied by Bill in the car and cutaways of her phone.

While Block 6 started recording on Monday 16 January, pick-ups were recorded by the Block 5 unit at Roath Lock; this included a shot of the enzyme

mixture starting to spray in the lab which was completed shortly after 6.30pm in Studio 3.

'Day 28, final day of shoot. Wrap shot! @ Cardiff Aviation' tweeted Daniel Nettheim on Tuesday 17 January. Recording began in Studio 3 at 7.30am on a series of inserts; Erica's glasses being smashed, the Doctor operating the airlock (the hands of unit medic Glyn Evans standing in for Peter Capaldi's), Xiaolian's watch (assistant director Lauren Pate standing in for Daphne Cheung), a shot of the plants dying, the growing box exploding and a model shot of the US bomber. The crew then relocated to the premises of eCube Solutions at MOD St Athan, an RAF base which had been visited numerous times by the *Doctor Who* team since *Rise of the Cybermen/The Age of Steel* [2006 – see Volume 52], and *Army of Ghosts/*

Doomsday [2006 – see Volume 53] in January 2006. eCube Solutions had previously provided aircraft for use in *The Bells of Saint John* [2013 – see Volume 72] in October 2012 and *The Zygon Invasion/The Zygon Inversion* in May 2015. The sequence on the bomber flight deck was recorded followed by the arrival of the Secretary General's car – a Land Rover Discovery Series III – to the airstrip where the Doctor's latest presidential plane was parked; doubles were used for several of these shots with work wrapping early at 5.15pm.

A pick-up shot of the meeting room as seen in 'Doctor Vision' was recorded by a second unit directed by Peter Bennett from 7.30am on Friday 17 March during work for Block 7 (*World Enough and Time/The Doctor Falls* [2017 – see Volume 89]). ■

PRODUCTION

Mon 28 Nov 16 BBC Roath Lock Studios: Casualty Pub Set, Casualty Lot (Student Bar)

Tue 29 Nov 16 BBC Roath Lock Studios: Pobol y Cwm Lot (Bill's Flat – Kitchen); West Bute Street, Cardiff Bay (Street)

Thu 1 Dec 16 Baldwins Crescent, Crymlyn Burrows, Swansea (Erica's House); Pilot Laboratory, Swansea University, Bay Campus, Fabian Way, Swansea (Agrofuel Research Ops – Lab); near Fabian Way, Swansea (Big Black Car; Road)

Fri 2 Dec 16 Pilot Laboratory (Agrofuel Research Ops – Lab/Greenhouse)

Mon 5 Dec 16 Pilot Laboratory (Agrofuel Research Ops – Greenhouse/Airlock/Lab/Airlock 2)

Tue 6 Dec 16 Pilot Laboratory (Agrofuel Research Ops – Lab/Machine Room/Greenhouse/Airlock/Airlock 2)

Mon 12 Dec 16 Hospital Militar de Abades 38588, Santa Cruz de Tenerife (Pyramid; The Town)

Tue 13 Dec 16 Hospital Militar de Abades (The Town; UN Base; Dirt Road)

Wed 14 Dec 16 Hospital Militar de Abades (The Town; Pyramid – Entrance; Pyramid)

Thu 15 Dec 16 Hospital Militar de Abades (The Town – Doctor Vision/Barrier/Bomber Model; Russian Field Tent; UN Base)

Wed 4 Jan 17 BBC Roath Lock Studios: Studio 1 (Pyramid – Monitoring Chamber/Entrance Chamber/Thread Chamber)

Thu 5 Jan 17 BBC Roath Lock Studios: Studio 1 (Pyramid – Thread Chamber/Entrance Chamber)

Fri 6 Jan 17 BBC Roath Lock Studios: Studio 1 (Pyramid – Entrance Chamber/Thread Chamber); Studio 2 (UN Base – Meeting Room/Anteroom)

Sat 7 Jan 17 BBC Roath Lock Studios: Studio 2 (UN Base – Anteroom/Meeting Room)

Mon 9 Jan 17 BBC Roath Lock Studios: Studio 3 (The Doctor's Plane – The Doctor's Office); Backlot (Big Black Car)

Tue 10 – Wed 11 Jan 17 BBC Roath Lock Studios: Studio 4 (The TARDIS)

Fri 13 Jan 17 BBC Roath Lock Studios: Studio 4 (Car; Thread Chamber)

Mon 16 Jan 17 BBC Roath Lock Studios: Studio 3 (Agrofuel Research Ops – Growing Box)

Tue 17 Jan 17 BBC Roath Lock Studios: Studio 3 (Erica's House; Agrofuel Research Ops – Airlock/Greenhouse/Growing Box; Pyramid; Skies above Western Desert); eCube Solutions, RAF St Athan, Barry (Bomber – Flight Deck; Big Black Car – Airstrip)

Fri 17 Mar 17 BBC Roath Lock Studios: Studio 3 (Meeting Room)

Post-production

Post-production work on the episode, such as CGI, included the shots of the pyramid with its ray of light, the Doctor's limited vision and blinded eyes, monitors used by the Monks, the demise of characters such as the military leaders, the death of the plants, Douglas turning to ash (an additional, unscripted effect) and the sterilising explosion. Library images of disasters simulated the vision of the future. As with *Extremis*, the voice of the Monks was dubbed by Tim Bentinck.

Below:

The Doctor is in no hurry to accept the deal offered by the Monks.

As usual, timing trims were made to the episode. In the pre-credits, when the Secretary General entered Bill's flat, he originally told her: "I am very sorry to have interrupted your evening." When the

official asked for her help, Bill exclaimed: "Me?" "Have I been misinformed?" asked the Secretary General. The intercutting between *Extremis* and *The Pyramid at the End of the World* used captions such as 'Previously:' and 'Now:' to differentiate between the simulation and the real world.

After the opening titles, Nardole's comment about the UN not taking "no" for an answer was added during ADR (additional dialogue recording). When Erica asked Douglas if he could do the mixing because she had broken her reading glasses, he nodded: "You fit up the sprayers." "Don't let me catch you playing Solitaire on there," Erica remarked as he took down an iPad from the shelf. "Once! That happened once! Twice," he replied as Erica laughed and set off for the greenhouse.



Standing before the pyramid with Brabbit and the Secretary General, the Doctor originally said to Bill: "Let's start with the obvious, shall we?" "The obvious?" asked Bill before her tutor asked her what she saw. As the Doctor marched towards the pyramid beyond the barrier, Bill remarked: "Thing about the Doctor – he can't really focus unless someone's trying to kill him. He says everything else is small talk." When all the phones started to ring, Brabbit commented: "What the hell's this – ET?"; this was a reference to the 1982 science-fiction movie *ET the Extra-Terrestrial* in which a friendly alien needed to "phone home" to its own people after arriving on Earth.

Peace in our time

After the Doctor said to Bill that he fully understood about weakness, his student asked: "Okay, so I think I know where this is going." "You do?" asked the Doctor. "Thing is, end of the world, I get it, I ought to be afraid..." began Bill. "No – that's not... that's not quite..." replied the Doctor. "But do you know why I'm not scared?" asked Bill, putting her arm around him and giving him a little squeeze, "Because funnily enough, I have faith in you." Bill querying why the pyramid was suddenly active replaced a different exchange of Bill asking "Doctor, what's happening?" and the Doctor replying, "The Americans are going to bomb the pyramid."

When Nardole told the Doctor that the bomber crew was emerging alive from the pyramid, Bill asked: "Why are you commentating on this? We can see." "Moving scenes there as the heroes land and emerge from out of the pyramid..." added Nardole. After the death of the Secretary General and the Doctor's speech



Above:
Going to face
the invaders.

rejecting the Monks, the main Monk explained: "His consent was impure. The link could not be formed."

When Erica told Douglas that she once threw up in her suit, Erica added: "I swear afterwards I was finding bits in my socks..." Back at the military base when Xiaolian refused to accept the vision of what was to come, she said: "I have seen the future, I have seen death – and whatever my orders, whatever the generals say, I say no." After she declared that she would not fight the Russians, Ilya replied: "It is not our choice." "Without us, it's not a war," said Xiaolian, and after the Russian claimed to be just a soldier, she told him: "Our masters are driving us into Hell." Watching the military leaders shake hands, Nardole commented – with reference to British Prime Minister Neville Chamberlain's speech on returning from Germany in September 1938 – "Peace for our time." After Brabbit suggest that they gave peace a chance, Xiaolian remarked: "Perhaps this is what the Monks came to teach us. Perhaps they are not our enemies at all, but our saviours..." "Yeah, right. Did you see what happened to the Secretary General?" observed Nardole.

After Brabbit told the Doctor that it was humanity's planet and choice, he added: "It's not my job to burn civilians because I don't know when to wave a white flag." As



Above:
Facing
the future.

the military departed for the pyramid, the Doctor originally told Bill: "Go with them. Monitor them. Keep them in line, if you can." He also told Bill that he was "very, very sorry" that he had been keeping the truth of his blindness from her.

Extensive work

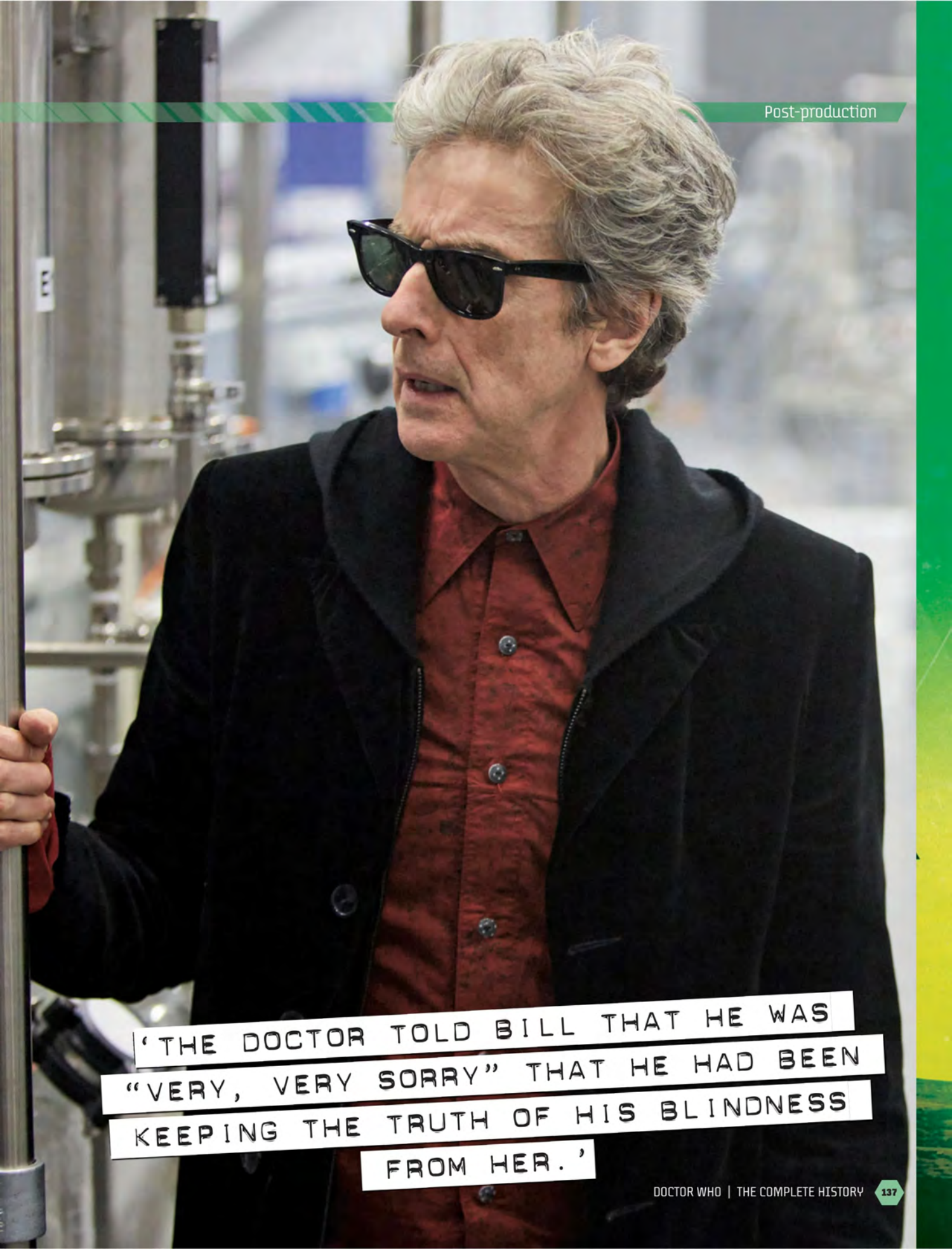
Having heard from the Doctor and agreed on a two-minute deadline, the military moved towards the pyramid as Bill said into her phone: "Doctor, stay on the line." "Bit busy!" he replied. "Stay on the line!" insisted Bill. In the Agrofuel lab, the Doctor said to Erica, "Right. I'll tell you what components we need and you put them together." "Can't you do it?" she asked. "These aren't my reading glasses," he explained. "It's just I'm kind of busy with our other problem," Erica said. "Our other problem besides the potential global extinction event?" asked the Doctor. When she told the Doctor that she couldn't turn off the air filtration cycle, she added: "Health and safety." "And how's that working out?" asked the Doctor. After the Doctor asked what Erica was doing when this was all over, he originally added: "Because the last few people I've travelled with, I'd still be explaining the Baby Bio joke."

In the pyramid, after Brabbit said they were ready to talk, the Monk asked: "Do you represent this world?" "Right now, I guess I do," Brabbit replied, nodding to his colleagues, "Collectively, we represent Earth." After Brabbit gave his consent, Xiaolian and Ilya echoed his words. Later as the Monks faced Bill, they asked: "This world is nearly dead. Do you consent?" This caused her to ask the Doctor if he was still on the line, adding: "This ain't gonna end well..."

After the explosion in the lab, Bill looked at the Monk and asked: "So...? What happens now? What are you gonna do?" As the Monk looked at her and opened its mouth, she called out: "Doctor, if you can hear me, listen. I just saved your life. But I gave away the world to do it." The Monk's final line was added in ADR.

Because of his enforced extensive work on the script, Steven Moffat took a co-writer credit after Peter Harness on the opening titles. The trailer for the following episode, *The Lie of the Land*, was placed after the closing credits for cast and crew and before the executive producer and copyright caption.

On Monday 22 May 2017, a terrorist bomb was detonated at the Manchester Arena killing 22 people. Consequently, out of respect for the victims, small dialogue elements were removed from the programme just days before transmission. During the scene in the UN base meeting room, when the Doctor asked what could bring about the end of the world, Bill suggested: "Terrorist attack? A lone terrorist?" "They would have to have access to something extremely deadly..." began the Doctor before Nardole suggested bacteria. The Doctor's subsequent speech in which he said "plague and terrorists discriminate" was similarly amended. ■



'THE DOCTOR TOLD BILL THAT HE WAS
"VERY, VERY SORRY" THAT HE HAD BEEN
KEEPING THE TRUTH OF HIS BLINDNESS
FROM HER.'

Publicity

Above:

With the help of Nardole, the Doctor keeps his blindness a secret.

► The episode's title was revealed in April. Published on Thursday 4 May, *Doctor Who Magazine* Issue 512 carried a two-page preview of *The Pyramid at the End of the World* in which Steven Moffat spoke to Benjamin Cook. The Doctor drawing his line in the sand formed a 41" preview clip for the episode on Sunday 21 May. On Monday 22 May, actors Rachel Denning and Jamie Hill joined Christel Dee to record the aftershow discussion of the episode for *Doctor Who: The Fan Show* at Multichannel Studios in London.

► Mark Braxton described the adventure as 'a tense, zippy tale' which celebrated how effective the Doctor, Bill and Nardole were as a team in the *Saturday Choice* section of *Radio Times* on Tuesday 23 May, while in the magazine's *Feedback* section, Sophie Gilbert of Edinburgh noted of the previous issue that: 'Peter Capaldi's Doctor (20 May) looks increasingly like a slightly deranged Bob Dylan. Fabulous.'

► Steven Moffat's 27" introduction to *The Pyramid at the End of the World* went

online from the BBC on Wednesday 24 May. BBC Worldwide announced a major brand boost via Shanghai Media Group Pictures in China on Thursday 25, including not only the 2017 series of *Doctor Who* but a 'first look' at the following five series. That evening, Pearl Mackie attended a performance of *Woyzeck* at the Old Vic, and earlier that day had appeared with Peter Capaldi in a 41" introduction for the next episode of *Doctor Who* while a 10" trailer was issued the same day. A second preview clip on Friday 26 comprised 37" of the Doctor's discussions with Brabbit, prior to crossing the barrier; by now, Steven Moffat was in Los Angeles, attending the US Sherlocked convention for his other BBC One series *Sherlock*.

▶ Pearl Mackie appeared live on BBC One's *Saturday Kitchen* from 10am on Saturday 27 May, chatting to host Matt Tebbutt across the 90-minute show; the actor discussed her exposure to the media, joining the series, Bill's reveal and how in tonight's adventure "Bill has quite a choice to make at the end of the episode, and next week we see the consequences". Viewers voted that Mackie should be fed 'food heaven' and so a fillet steak was prepared for her to enjoy at the end of the broadcast. Meanwhile on Radio 4, *Doctor Who* was discussed on the documentary *Costume Drama: The Wonderful World of Cosplay* by host Yasmeen Khan who chatted to Dalek operator Barnaby Edwards and cosplayer Scott Mason.



Left:
The Secretary General and Colonel Brabbit take a look at the pyramid.

Broadcast

► *The Pyramid at the End of the World* was scheduled in the later timeslot of 7.50pm on Saturday 27 May. “The countdown to destruction is on,” commented the announcer before the ‘Pure Drama’ branding which opened the episode. The episode had a 45-minute slot, overlapping the end of *Take Me Out* and the start of *Britain’s Got Talent* on ITV. At the end of the episode, the announcer indicated that the next episode would air in the earlier slot of 7.35pm the following Saturday. The ratings were an improvement on the preceding

Extremis and the show performed better than usual against the highly rated *Britain’s Got Talent*, again beating *Take Me Out*; this placed it in the top 20 shows of the week.

► The 15’45” aftershow discussion from *Doctor Who: The Fan Show* was released after broadcast with Jamie Hill and Rachel Denning talking to Christel Dee. Another 1’21” video saw Eben Young, Andrew Byron and Daphne Cheung chatting while in studio about their roles in the episode. Hill was then featured in a 1’12” video on

Right:

The Doctor gives an impassioned speech.





Sunday 28 in which he recalled how he had been spotted in Cardiff for a role as a Silent by assistant director James DeHaviland in 2011.

- ▶ In Australia, ABC2's *Whovians* saw the new episode discussed by Rove McManus who was joined by his actor wife Tasma Walton as well as ABC3 *Steam Punks* host Paul Verhoeven in addition to Tegan Higginbotham and Adam Richard. A video interview with Steven Moffat

in London was shown, while other items in the show included romantic pictures of *Who*-themed couples, an examination of how fans hid their fandom from their loved ones, the BBC video with Jamie Hill and ABC *Breakfast* co-host Virginia Trioli demonstrating extensive knowledge of *The Tenth Planet* [1966 – see Volume 8] in her audition as the new Doctor alongside her colleague Michael Rowland. In the USA, Peter Capaldi commented that the episode “brought a contemporary edge to *Doctor Who*” as he and Pearl Mackie featured in a 1'10" *Doctor Who Closer Look* from BBC America.

- ▶ Pearl Mackie's video from the first day of the Tenerife shoot formed a 1'14" release from the BBC on Monday 29 May. A signed repeat of *The Pyramid at the End of the World* had been scheduled for 1.20am on BBC Two on Saturday 3 June, but was rescheduled to 2.15am because of extra cricket highlights from Edgbaston at 12.25am; the repeat attracted around 230,000 viewers. Reviewing the episode in *Doctor Who Magazine*, Graham Kibble-White was forced to admit: “I didn't fall in love with this week's adventure.”

Left:

Bill and Nardole face the Monks.

ORIGINAL TRANSMISSION

EPISODE	DATE	TIME	CHANNEL	DURATION	RATING (CHART POS)	APPRECIATION INDEX
The Pyramid at the End of the World	Saturday 27 May 2017	7.50pm-8.40pm	BBC One	46'13"	5.79M (14th)	82

REPEAT TRANSMISSION

The Pyramid at the End of the World	Saturday 3 June 2017	2.15am-3am ¹	BBC Two	46'13"	0.23M (-)	-
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¹ Signed repeat. Scheduled for 1.20am-2.05am

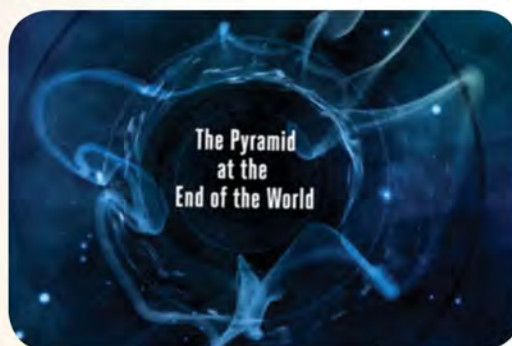
Merchandise

Right:
Behind-the-scenes on the DVD extras.

The DVD and Blu-ray set *Doctor Who: Series 10: Part 2* issued by BBC Worldwide on Monday 24 July 2017 featured both *The Pyramid at the End of the World* and a 2'53" *Inside Look* with comments from Peter Capaldi, Pearl Mackie and Steven Moffat. The episode was also featured on *Doctor Who: The Complete Series 10* released on Monday 13 November, along with the *Inside Look*, and the aftershow edition of *Doctor Who: The Fan Show*. A Blu-ray Steelbook edition of the box set was also available, exclusive to Amazon UK, with artwork by Alice X Zhang.

In 2018, *Who Dares'* A4 wire-bound calendar featured 12 pieces of Stuart Manning's retro artwork, including art from *The Pyramid at the End of the World* for April. ■

Right:
The Pyramid at the End of the World was first released on DVD as part of *Series 10: Part 2*.



Cast and credits

CAST

Peter Capaldi.....The Doctor
Pearl Mackie.....Bill¹
 and
Matt Lucas.....Nardole
 with
Togo Igawa.....Secretary General
Nigel Hastings.....The Commander
Eben Young.....Colonel Don Brabbit
Rachel Denning.....Erica
Tony Gardner.....Douglas
Andrew Byron.....Ilya
Daphne Cheung.....Xiaolian
Ronke Adekolujo.....Penny²
Jamie Hill.....Monk
Tim Bentinck.....Voice of the Monk

¹ Billed as Bill Potts in listings publications

² Uncredited on screen and in listings publications

UNCREDITED

Victoria George-Veale.....Barmaid
Rhys Mumford, Makeba Nicholls, Thubelihle Moyo, Kelly O'Shea, Francis Asare-Lawrence, Thomas Burris, Ainsleigh Barber, Josh Hopkin, Tamina Ali.....Student Punters



Angus Brown Michael Gleeson.....UN Soldiers
Andy Golding, David Jones Driver
Iwan Roberts, Chris Ahearne.....
Follow/Lead Car Drivers
20 Unknown, Jon Davey, Chester Durrant, Antonia Forrest, Marcus Elliott, Andrew Cross, Lisa Jones.....UN Troops
David Stock.....Double for The Commander
Lewis Fackrell.....Landing Attendant
Scott Stevenson.....Erica's Husband
Alison Ball, Liam Carey, Jayesh Harji, Helen Beck, Karen Reed, Mike Wendall.....
Chemical Lab Workers
Stuart McNeill, Ying Quin, Raven Shanelle, David Stacey, Darren Swain, Claudine Whyte.....
Lab Workers
Sam Rush, Liam Carey, James O'Neill, 2 Unknown, Andrew Sweet, Matt Rohman, Tim Reid, Martin Reid, Neil Cox, David Coleman.....Monks
16 Unknown.....Journalists
6 Unknown.....Villagers
2 Unknown.....Russian Troops
Unknown.....Double for The Doctor
Unknown.....Double for Nardole
Sarah Mitchell, Daniel Murray, Stephen Emuobonuvie.....US Bomber Crew
3 Unknown.....Doubles for US Bomber Crew
3 Unknown.....Russian Naval Crew
Lauren Pate.....Hand Double for Xiaolian
Glyn Evans.....Hand Double for The Doctor

Left:
 A Monk
 is ready
 for action.

CREDITS

Written by Peter Harness & Steven Moffat

Produced by Peter Bennett

Directed by Daniel Nettheim

[2nd unit: Peter Bennett]

Stunt Coordinator: Crispin Layfield

1st Assistant Director: Fletcher Rodley

[2nd unit: Christopher J Thomas]



Above:
Peter Capaldi
performs a
scene in the
laboratory.

2nd Assistant Director: James DeHaviland
[uncredited: Delmi Thomas]
3rd Assistant Director: Christopher J Thomas
[uncredited: Rhun Ilewelyn]
Assistant Directors: Rhun Ilewelyn, Lauren Pate
[uncredited: Ella Morgan, Arianrhod Engeboe,
Max Webborn, Daniel Kikouki, Mauro Taborda,
Martin Yarza, Cat Oswald]
Unit Drivers: Sean Evans, Paul Watkins
[uncredited: Jolyon Davey, Beverley Spinola,
David Purnell, Steve Darwent, Kevin Francis,
Montil Jalil, Iry Villegas, Carla Purrinos, Rosa Cano,
Ivan Umpierrez, Jose 'Pachi' Padron, Oliver Perez,
Eddie Edwards, Mark James, Graham Huxtable,
Paul Carmichael, Darren Davies]
Location Manager: Iwan Roberts
Unit Manager: Beccy Jones
[uncredited: Jose Luis Ayra]
Production Manager: Adam Knopf
[uncredited: Bea Fluxa]
Production Coordinator: Sandra Cosfeld
Assistant Production Coordinator: Nicola Chance
Production Assistants: Virginia Bonet, Jamie Shaw
Assistant Accountant: Matthew Fisher
Art Department Accountant: Bethan Griffiths
Script Supervisor: Nicki Coles
[uncredited: Richard Pask, Megan Lynas]
Script Executive: Lindsey Alford

Script Editor: Emma Genders
Camera Operator: Mark McQuoid
[Steadicam: Rob Carter; 2nd unit:
Stuart Biddlecombe]
Focus Pullers: Jonathan Vidgen, Elhein De Wet
[uncredited: Paul Andrew, Steve Rees,
Matt Lepper]
Camera Assistants: Gethin Williams, Drew Marsden,
Dan Patounas [uncredited: Scott Waller,
Victoria Harris, Rhodri Wyn Davies]
Grip: John Robinson [uncredited: Sean Cronin,
Gary Sheppeard]
Assistant Grip: Sean Cronin
[uncredited: Aled Roberts, Elliot Sebestyen-
Regan; 2nd unit: Sion Woodman]
Sound Maintenance Engineers: Tam Shoring,
Christopher Goding [uncredited: Daf Parry]
Gaffer: Mark Hutchings
Best Boy: Andy Gardiner
Electricians: Gawain Nash, Gareth Sheldon,
Bob Milton, Sion Davies, Andrew Williams
Supervising Art Director: Paul Spriggs
Art Director: Tim Overson
[uncredited: Dafydd Shurmer]
Standby Art Director: Christina Tom
Set Decorator: Adrian Anscombe
Production Buyer: Jen Saguaro
Prop Buyers: Jo Pearce, Charlotte Lailey de Ville

Draughtperson: Matt Sanders
 Prop Master: Paul Smith
 Props Chargehand: Kyle Belmont
 Standby Props: Matt Ireland, Jonathan Barclay
 [2nd unit: Ryan Milton]
 Prop Hands: Scott Howe, Nigel Magni, Matt Watts
 Storeman: Jamie Southcott
 Concept Artist: Darren Fereday
 Graphic Artist: Lawrence Hearn
 Graphics Assistant: Jack Bowes
 Standby Carpenter: Paul Jones
 [uncredited: Jamie Farrell]
 Rigging: Shadow Scaffolding
 Standby Rigger: Colin Toms
 [uncredited: Tom Williams]
 Practical Electricians: Callum Alexander,
 Austin Curtis
 Props Driver: Gareth Fox
 Construction Manager: Terry Horle
 Construction Chargehand: Dean Tucker
 Chargehand Carpenter: John Sinnott
 Carpenters: Tim Burke, Keith Richards, Matt Ferry,
 Campbell Frazer, Chris Daniels, Joe Painter,
 George Rees, Alan Jones, Dan Berrow,
 Mike Venables, Tom Berrow
 Construction Driver: Jonathan Tylke
 Construction Labourer: Jason Tylke
 Head Scenic Artist: Clive Clarke
 Painters: Steve Nelms, John Nelms, Paul Murray,
 Debby McShane
 Model Makers: Alan Hardy, Jamie Thomas
 Assistant Costume Designer: Zoe Howerska
 Costume Supervisor: Kat Willis
 Costume Assistants: Rebecca Cunningham,
 Leila Headon, Jenny Tindle [uncredited:
 Gayle Woodsend, Antonella Camponeschi]
 Make-up Supervisor: James Spinks
 Make-up Artists: Megan Bowes, Lolly Goodship
 [uncredited: Cathy Davies, Haridian Nobregas,
 Monika Hrabovcakova]
 Unit Medic: Glyn Evans
 Casting Associate: Ri McDaid-Wren
 Casting Assistant: Louis Constantine
 Business Affairs Executive: Carol Griggs
 Assistant Editors: Becky Trotman, David Davies

VFX Editor: Dan Rawlings
 Post Production Coordinator: Hannah Jones
 Dubbing Mixers: Mark Ferda, Darran Clement
 ADR Editor: Matthew Cox
 Dialogue Editor: Helen Dickson
 Sound Effects Editor: Harry Barnes
 Foley Editor: Simon Clement
 Foley Artist: Julie Ankersen
 Titles: BBC Wales Graphics
 Title Concept: Billy Hanshaw
 Online Editors: Geraint Pari Huws, Mark Hardyman
 Assistant Online Editor: Christine Kelly
 Colourist: Gareth Spensley
 Music Conducted & Orchestrated By Alastair King
 Music Mixed By Jake Jackson
 Music Recorded By Gerry O'Riordan
 Music Score Assistant: Jack Sugden
 Original Theme Music: Ron Grainer
 With thanks to the BBC National Orchestra of Wales
 Casting Director: Andy Pryor CDG
 Head of Production: Gordon Ronald
 Production Executive: Tracie Simpson
 Post Production Supervisor: Samantha Price
 Production Accountant: Simon Wheeler
 Sound Recordist: Deian Llŷr Humphreys
 [uncredited: Richie Brooks]
 Costume Designer: Hayley Nebauer
 Make-up Designer: Barbara Southcott
 Music: Murray Gold
 Visual Effects: Milk, BBC Wales VFX
 Special Effects: Real SFX
 Special Creature Effects & Prosthetics:
 Millennium FX
 Editor: Xavier Russell
 Production Designer: Michael Pickwood
 Director of Photography: Ashley Rowe
 [2nd unit: Stuart Biddlecombe]
 Line Producer: Steffan Morris
 [uncredited: Juan 'Nono' Cano]
 Executive Producers: Steven Moffat, Brian Minchin
 BBC Studios
 Cymru Wales
 bbc.co.uk/doctorwho
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 albert+ sustainable production

Profile

TOGO IGAWA

Secretary General

Togo Igawa was born on 26 September 1946 in Tokyo, Japan. Unbeknown to his parents he trained as an actor at Haiyûza Yôseijo Theatre then Tôhō Gakuen Drama College.

In 1968 he joined touring company Theatre Centre 68, later known as The Black Tent Theatre.

While in Japan, one of Igawa's earliest film appearances came in the underground movie *Almost Transparent Blue* (1979).

Having met and married his English wife Adrienne Baba in Japan, he came to live in England in 1983, where he initially worked as an English-Japanese translator. Persuaded to take up acting in the UK, among his earliest British work was a leading role as a Japanese gangster in supporting film feature *The Man Who*

Shot Christmas (1984) and radio play *Hiroshima: The Movie* (1985).

He became the first Japanese actor to join the Royal Shakespeare Company in 1986, appearing at the newly opened Swan Theatre, Stratford in *The Rover*, *They Shoot Horses Don't They?* and Trevor Nunn's *The Fair Maid of the West*, all of which transferred to London's Mermaid in 1987.

Igawa's early TV work tended towards stereotypical Japanese roles, playing tourists in comedies *Never the Twain* (1988) and *Murder Most Horrid* (1991), two different but similar businessmen in rag trade soap *Gems* (1985/6) and yet another tycoon in *Capital City* (1989).

One of his bigger roles came in *Screen Two* American football comedy *Defrosting the Fridge* (1989), while further TV appearances included *Forever Green* (1989), *The Ginger Tree* (1989), *Lovejoy* (1992), *A Diplomat in Japan* (1992), *Nice Day at the Office* (1994), Dennis Potter's *Karaoke* (1995), *Drop the Dead Donkey* (1996), *Screen Firsts: National Achievement Day* (1996) and *Thief Takers* (1997).

His movie work similarly began with ethnic cipher parts such as a Japanese waiter in *Half Moon Street* (1986), before moving onto appearances in small British films and international blockbusters alike including *Wilt* (1989), *Just Like a Woman* (1992), Stanley Kubrick's *Eyes Wide Shut* (1999), another Japanese businessman in comedy *The Parole Officer* (2001), *Gambit* (2012) and *Breaking the Bank* (2014). He found leading film roles in *Memoirs of a Geisha* (2005) and starred as Mr Ozo in French language movie *The Hedgehog* (2009). He played a resistance officer in *Star Wars: The Last Jedi* (2017) and appeared in musical sequel *Mamma Mia! Here We Go Again* (2018).

He has featured in several productions in the martial arts action genre. Although

Below:
Igawa as Dr
Tanizaki in the
Torchwood
episode
Cyberwoman.



not a proponent himself, apart from some kendo training as a child, he has tended to take sage 'sensei' teacher roles. He was General Hasewaga in Tom Cruise's *The Last Samurai* (2003), appeared in *Speed Racer* (2008), *Ninja* (2009) and starred as Gôtetsu in TV series *Street Fighter: Assassin's Fist* (2014). Igawa sent up such roles playing guru Ting Wang in movie spy spoof *Johnny English Reborn* (2011).

Another side to his career is animation voice roles, most notably Hiro in *Thomas and Friends* from 2009 to present. He voiced Professor Moshimo in *Robotboy* (2006-8), while other voice work has included *Mr Bean* (2002), *Archer* (2015) and *Thunderbirds Are Go* (2017).

His voice talents have also been used in many video games including *Genji: Dawn of the Samurai* (2005), *Perfect Dark Zero* (2005), *Medieval II: Total War* (2006), *Crysis* (2007), *Crysis: Warhead* (2008) and *Total War: Shogun 2* (2011).

Later theatre included *The Great Highway* (1993, Gate, London), *The Ashgirl* (2000, Birmingham Rep), Sondheim musical *Pacific Overtures* (2003, Donmar Warehouse) and *Who Do We Think We Are?* (2014, Southwark Playhouse). He helped found the Ichiza Theatre Company in 2006, directing productions including *The Face of Jizo* (2007).

His varied twenty-first-century television work has included *Murphy's Law* (2001), twice as Japanese businessmen in sitcom *The IT Crowd* (2006/8), *Wire in the Blood* (2008), *Primeval* (2008), *Casualty* (2014), and *Doctors* (2017).

Aside from his *Doctor Who* appearance as the UN Secretary General, Igawa played cybernetics expert Dr Tanizaki in *Torchwood* episode *Cyberwoman* (2006).

He lives in the village of Bloxham, near Banbury, Oxfordshire with his wife, a potter and teacher of Japanese cookery. ■



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The Doctor is blind, but hides the truth from Bill. A copy of an ancient book, the *Veritas*, is about to go viral, but everyone who reads it kills themselves. The Pope requests that the Doctor discovers the book's secret by reading it himself... but he cannot see.

THE PYRAMID AT THE END OF THE WORLD

An ancient pyramid suddenly appears in a war zone. Inside are aliens who warn that the extinction of all life on Earth is imminent, but they offer salvation... at a price. The Doctor searches for the cause of the world's end, and Bill prepares to make a fateful deal.

